

شكراً لتحميلك هذا الملف من موقع المناهج الإماراتية



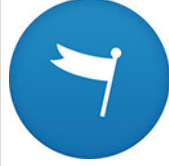
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حل تجميعة أسئلة وفق الهيكل الوزاري

[موقع المناهج](#) ← [المناهج الإماراتية](#) ← [الصف العاشر المتقدم](#) ← [رياضيات](#) ← [الفصل الثاني](#) ← [الملف](#)

التواصل الاجتماعي بحسب الصف العاشر المتقدم



روابط مواد الصف العاشر المتقدم على تلغرام

[الرياضيات](#)

[اللغة الانجليزية](#)

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المزيد من الملفات بحسب الصف العاشر المتقدم والمادة رياضيات في الفصل الثاني

[دليل تصحيح أسئلة الامتحان الورقي - بريدج](#)

1

[أسئلة الامتحان النهائي الالكتروني والورقي - بريدج](#)

2

[حل تجميعة أسئلة وفق الهيكل الوزاري](#)

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[حل نموذج مراجعة وفق الهيكل الوزاري](#)

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[نموذج أسئلة وفق الهيكل الوزاري - ريفيل](#)

5

الدرس 5-1

Practice and Problem Solving

Examples 1–2 For Exercises 10–13, refer to $\odot R$.

10. Name the center of the circle.
11. Identify a chord that is also a diameter.
12. Is \overline{VU} a radius? Explain.
13. If $SU = 16.2$ centimeters, what is RT ?



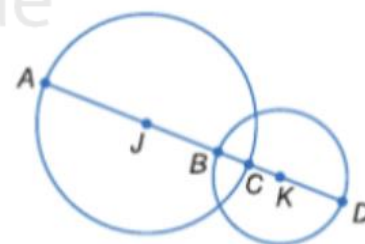
For Exercises 14–17, refer to $\odot F$.

14. Identify a chord that is not a diameter.
15. If $CF = 14$ centimeters, what is the diameter of the circle?
16. Is $\overline{AF} \cong \overline{EF}$? Explain.
17. If $DA = 7.4$ centimeters, what is EF ?



Example 3 Circle J has a radius of 10 units, $\odot K$ has a radius of 8 units, and $BC = 5.4$ units. Find each measure.

- | | |
|----------|----------|
| 18. CK | 19. AB |
| 20. JK | 21. AD |



Answers

- | | | |
|---|---------------|---------------|
| 10. Name the center of the circle. R | | |
| 11. Identify a chord that is also a diameter. \overline{SU} | | |
| 12. Is \overline{VU} a radius? Explain. No; it is a chord. | 18. CK 2.6 | 19. AB 14.6 |
| 13. If $SU = 16.2$ centimeters, what is RT ? 8.1 cm | 20. JK 12.6 | 21. AD 30.6 |

For Exercises 14–17, refer to $\odot F$.

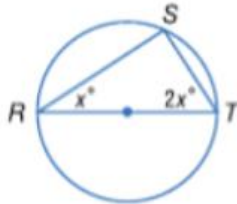
14. Identify a chord that is not a diameter. \overline{DE} or \overline{AE}
15. If $CF = 14$ centimeters, what is the diameter of the circle? 28 cm
16. Is $\overline{AF} \cong \overline{EF}$? Explain. Yes; they are both radii of $\odot F$.
17. If $DA = 7.4$ centimeters, what is EF ? 3.7 cm

الدرس 5-4

Example 4 ALGEBRA Find each value.

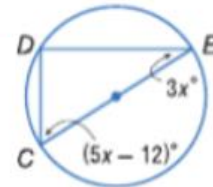
23. x

24. $m\angle T$



25. x

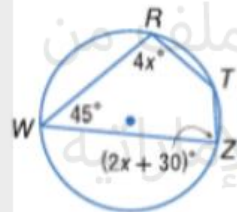
26. $m\angle C$



Example 5 STRUCTURE Find each measure.

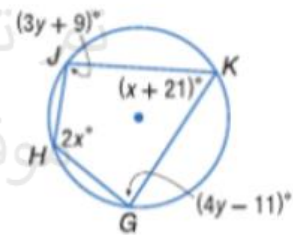
27. $m\angle T$

28. $m\angle Z$



29. $m\angle H$

30. $m\angle G$



Answers

23. x **30**

24. $m\angle T$ **60**

25. x **12.75**

26. $m\angle C$ **51.75**

27. $m\angle T$ **135**

28. $m\angle Z$ **80**

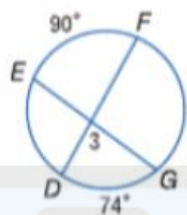
29. $m\angle H$ **106**

30. $m\angle G$ **93**

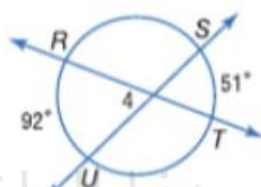
Practice and Problem Solving

Examples 1–2 Find each measure. Assume that segments that appear to be tangent are tangent.

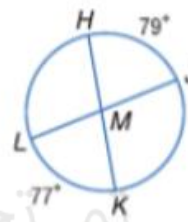
8. $m\angle 3$



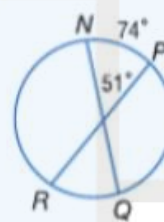
9. $m\angle 4$



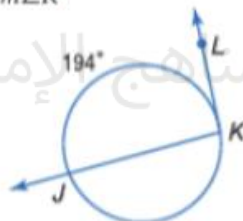
10. $m\angle JMK$



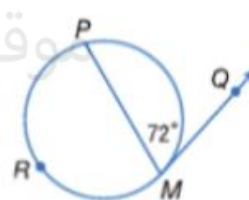
11. $m\widehat{RQ}$



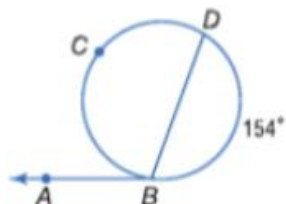
12. $m\angle K$



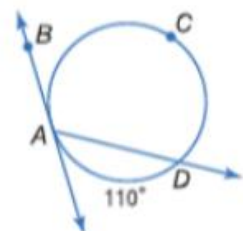
13. $m\widehat{PM}$



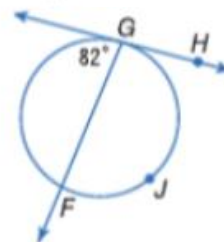
14. $m\angle ABD$



15. $m\angle DAB$



16. $m\widehat{GJF}$



Answers

8. $m\angle 3$ 82

9. $m\angle 4$ 71.5

10. $m\angle JMK$ 102

11. $m\widehat{RQ}$ 28

12. $m\angle K$ 97

13. $m\widehat{PM}$ 144

14. $m\angle ABD$ 103

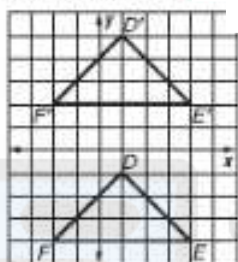
15. $m\angle DAB$ 125

16. $m\widehat{GJF}$ 196

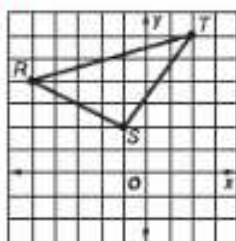
4	تمثيل الإزاحة في المستوى الإحداثي.	10 to 19	424
	Draw translations in the coordinate		

درس 6-2

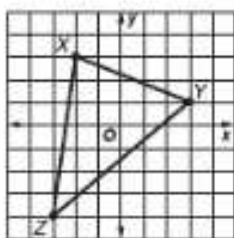
10. In the illustration, triangle $D'E'F'$ is formed by adding 6 units to the y -coordinate of each vertex of triangle DEF . The best term for describing triangle $D'E'F'$ is



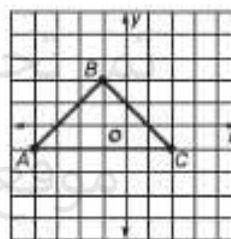
- A a rotation of $\triangle DEF$.
 B a reflection of $\triangle DEF$.
 C similar to $\triangle DEF$.
 D congruent to $\triangle DEF$.
11. Triangle RST has coordinates $R(-5, 4)$, $S(-1, 2)$ and $T(2, 6)$. What will be the new coordinates of point T if the triangle is translated 3 units to the right and 5 units down?



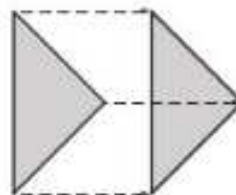
12. $\triangle XYZ$ is shown on the coordinate grid.
 If $\triangle XYZ$ is translated so that point X is on the y -axis and point Y is at $(5, -3)$, what will be the new coordinates of point Z ?



14. The vertices of parallelogram $ABCD$ are $A(-1, 3)$, $B(-1, -2)$, $C(-3, -5)$, and $D(-3, -2)$. If the figure is translated 4 units to the right and 2 units up, what are the coordinates of vertex B ?
15. Triangle ABC is to be translated to $\triangle A'B'C'$ by using the following rule. $(x, y) \rightarrow (x - 2, y + 3)$
 What will be the coordinates of point B ?



16. The vertices of $\triangle ABC$ are $A(0.5, 8)$, $B(7.5, 7)$, and $C(4.2, 2)$. Which set of coordinates are those of the vertices of the image that results from a translation of $\triangle ABC$ 3.5 units down?
17. Which of the following transformations is shown in the figure?



4	تمثيل الإزاحة في المستوى الإحداثي.	10 to 19	424
	Draw translations in the coordinate		

درس 6-2

Answer Box:

10. D

11. (5,1)

12. (-1, -8)

14. (3,5)

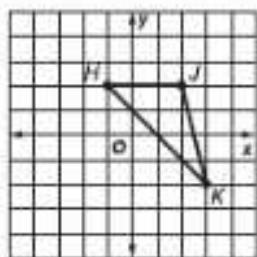
15. (-3, -5)

16. (0.5,4.5), (7.5,3.5), (4.2, -1.5)

17. translation

13. Triangle HJK below is translated so that the coordinates of the new vertices are $H'(-2, 4)$, $J'(1, 4)$, and $K'(2, 0)$.

What statement describes this transformation?



Answer Box:

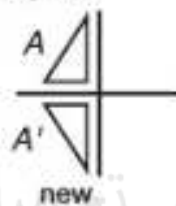
13. $(x, y) \rightarrow (x-1, y+2)$

18. D

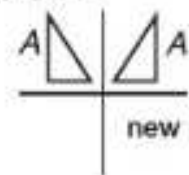
19. $(x,y) \rightarrow (x+3,y)$

18. Which diagram shows a translation of figure A ?

A original



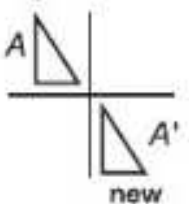
B original



C original

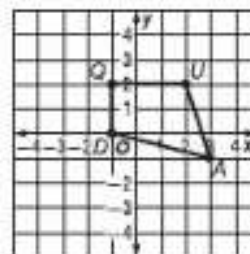


D original



19. Quadrilateral $QUAD$ has vertices as shown in the coordinate plane below.

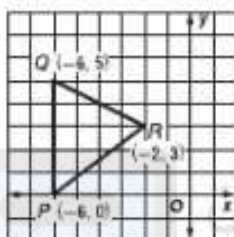
Which transformation will place two vertices at $(5, 2)$ and $(6, -1)$?



درس 6-3

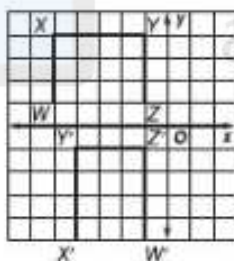
12. Triangle PQR has vertices $P(-6, 0)$, $Q(-6, 5)$, and $R(-2, 3)$ as shown below.

What is the image of point R after a 270° rotation counterclockwise about the origin?



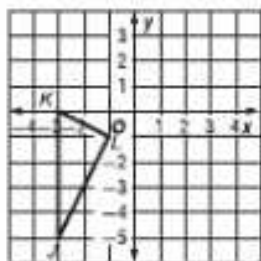
13. Look at the transformation below:

What is the measure of the angle of rotation of $WXYZ$ about the origin in a counterclockwise direction?



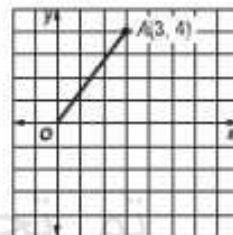
14. If triangle JKL is rotated 180° about the origin, what are the coordinates of J' ?

- A (5, 3)
- B (3, 0)
- C (3, 5)
- D (3, -5)



15. Triangle JKL has vertices at $J(0, 1)$, $K(2, 3)$, and $L(4, 0)$. If the triangle is rotated 180° about the origin, what will be the coordinates of K' ?

20. One vertex of a square is point A in the diagram below. The square is rotated 180° about the origin. What are the coordinates of A' , the image of A under the rotation?

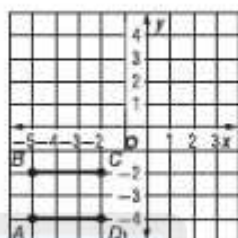


21. Under which rotation about the origin will $P'(-6, 1)$ be the image of $P(1, 6)$?
22. The image of $P(x, y)$ under a rotation about the origin O and through x° counterclockwise is $P'(x', y')$. Under which rotation about O can you rotate $P'(x', y')$ so that the image is $P(x, y)$?
23. A point in the first quadrant is rotated 90° counterclockwise. In which quadrant will the image of that point be located?
24. Point $P(x, y)$ is a point in the second quadrant. Under which rotation about the origin will the coordinates of the image be $P(-y, x)$?

Answer Box:

- 12. (3, 2)
- 13. 90°
- 14. C
- 15. (-2, -3)
- 20. $A'(-3, -4)$
- 21. 90° counterclockwise rotation
- 22. x° clockwise
- 23. Quadrant II
- 24. 90° counterclockwise rotation

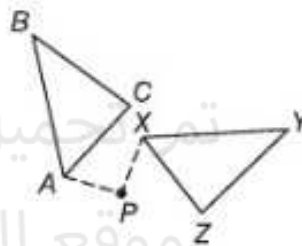
16. What are the coordinates of C' if rectangle $ABCD$ is rotated 90° clockwise about the origin?



17. Which is the image of $P(0, 7)$ under a 90° -counterclockwise rotation?
18. Which is the image of $Q(-3, 0)$ under a 90° -clockwise rotation?
19. Point $R(4, -2)$ is rotated about the origin 90° -counterclockwise. In which quadrant will the image of that point lie?

25. Which point is the image a 90° counterclockwise rotation of point $P(-4.7, 3.5)$ about the origin?

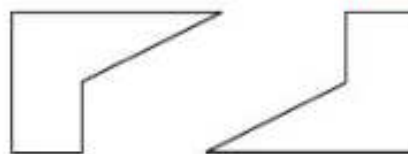
26. One triangle is a rotation of the other about P . Which statement is **not** true?



- A The triangles are congruent.
- B The orientation of one triangle is different from that of the other triangle.
- C Each of A, B, and C is rotated the same number of degrees to form $\triangle XYZ$.
- D $\angle A \cong \angle X$, $\angle B \cong \angle Y$, and $\angle C \cong \angle Z$

27. Which is the image of $P(-5, 12)$ under a 90° -counterclockwise rotation?

28. The polygons shown below are congruent. Which transformation could be used to demonstrate their congruence?



Answer Box:

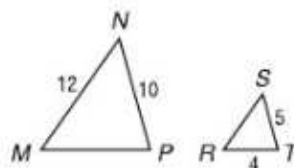
16. **(-2,2)**
17. **$P'(-7,0)$**
18. **$Q'(0, -3)$**
19. **Quadrant I**
25. **$P(-3.5, -4.7)$**
26. **B**
27. **$P'(-12, -5)$**
28. **rotation**

6	تمثيل عمليات تغيير الأبعاد (التمدد) بيانياً	11 to 16	466
	Draw dilations.		

درس 6-6

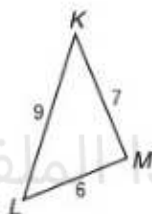
11. In the figure below, triangle MNP is similar to triangle RST .

Which scale factor was used to transform triangle $\triangle MNP$ to $\triangle RST$?



12. $\triangle KLM$ is shown below.

Which of the following shows $\triangle KLM$ dilated by a scale factor of $\frac{5}{4}$ to create a similar triangle $\triangle PQR$?



A

C

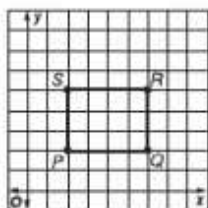
B

D

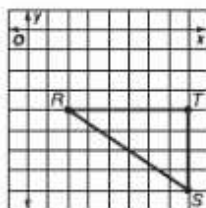
Answer Box:

- 11. $\frac{1}{3}$
- 12. D
- 13. (12,10)
- 14. (16,-16)
- 15. (2,6), (6,8), (4, -6)
- 16- dilation by scale factor of 2

13. Rectangle $PQRS$ is shown. If the rectangle is dilated by a scale factor of 2, with the origin as its center of dilation, find the new coordinates of R' .



14. $\triangle RST$ is shown. If it is dilated by a scale factor of 2 and has the origin as the center of dilation, which are the coordinates of S' ?



15. Badr is animating a cartoon character on the coordinate plane, using a dilation with scale factor 2. If $A(1, 3)$, $B(3, 4)$, and $C(2, -3)$ are three points on Puff the Blowfish before he inflates, what are the coordinates of the corresponding points D , E , and F on the inflated image?
16. Which type of transformation preserves orientation but not size?

7	استخدام مبدأ العد الأساسي لعد النتائج	15 to 24	485, 486
	Use the Fundamental Counting Principle to count outcomes		

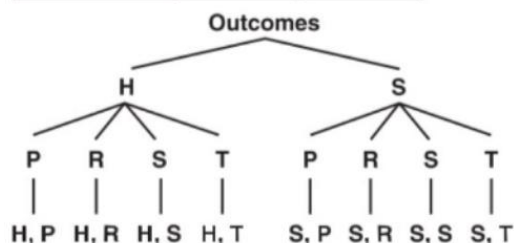
Answers: 15 -24

درس 7-1

Example 3 PERSEVERANCE In Exercises 15–18, find the number of possible outcomes for each situation.

15. In the Junior Student Council elections, there are 3 people running for secretary, 4 people running for treasurer, 5 people running for vice president, and 2 people running for class president. **120**
16. When signing up for classes during his first semester of college, Mahmoud has 4 class spots to fill with a choice of 4 literature classes, 2 math classes, 6 history classes, and 3 film classes. **144**
17. Hidaya is choosing one each of 6 colleges, 5 majors, 2 minors, and 4 clubs. **240**
18. Hala owns a restaurant where all-in lunch menu has 4 items: a starter, a main course, a dessert, and a drink. There are 5 options for the starter, 4 for the main course, 3 for the dessert, and 6 options for the drink. **210**
19. H = rhombus, P = parallelogram, R = rectangle, S = square, T = trapezoid; H, P; H, R; H, S; H, T; S, P; S, R; S, S; S, T; H, H; S, H

Outcomes	rhombus	square
parallelogram	H, P	S, P
rectangle	H, R	S, R
square	H, S	S, S
trapezoid	H, T	S, T
rhombus	H, H	S, H



20. **BREAKFAST** A hotel restaurant serves omelets with a choice of vegetables, beef, or chicken that come with a side of hash browns, grits, or toast.
- How many different outcomes of omelet and one side are there if a vegetable omelet comes with just one vegetable? **18**
 - Find the number of possible outcomes for a vegetable omelet if you can get any or all vegetables on any omelet. **45**

21. 6 different ways

$$4(x + 6) + 2(3) + 2(x + 4);$$

$$2(x + 11) + 2(x + 8) + 2(x);$$

$$2(x + 4) + 2(x + 9) + 2(x + 6);$$

$$2(x) + 2(3) + 4(x + 8);$$

$$2(x) + 2(x + 8) + 2(3) + 2(x + 8);$$

$$2(x) + 2(3) + 2(4) + 2(x + 6) +$$

$$2(x + 6)$$

22. **TRANSPORTATION** Noura got a new bicycle lock that has a four-number combination. Each number in the combination is from 0 to 9.

- How many combinations are possible if there are no restrictions on the number of times Noura can use each number? **10,000**

22b. 5040; Sample answer: There are 10 possibilities for the first number in the combination. Since Noura can use each number only once, there are only 9 possibilities for the second number in the combination, 8 possibilities for the third number in the combination, and 7 possibilities for the fourth number in the combination. The number of possible combinations is $10 \times 9 \times 8 \times 7$ or 5040.

7	استخدام مبدأ العد الأساسي لعد النتائج	15 to 24	485, 486
	Use the Fundamental Counting Principle to count outcomes		

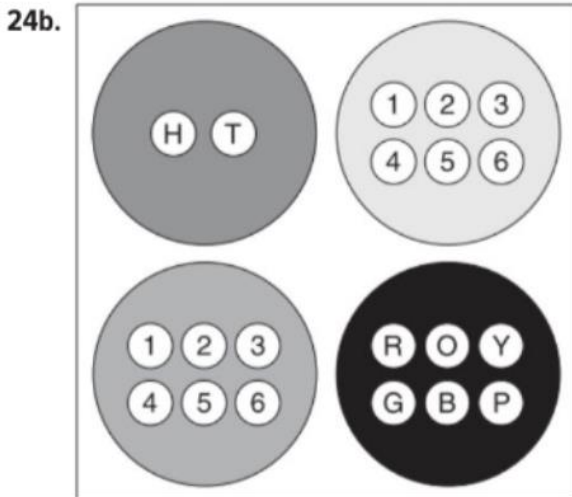
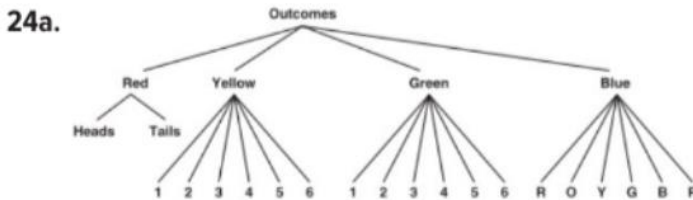
Answers: 15 -24

درس 7-1

24. **MULTIPLE REPRESENTATIONS** In this problem, you will investigate a sequence of events. In the first stage of a two-stage experiment, you spin Spinner 1 below. If the result is red, you flip a coin. If the result is yellow, you roll a die. If the result is green, you roll a number cube. If the result is blue, you spin Spinner 2.



- Geometric** Draw a tree diagram to represent the sample space for the experiment. **See Ch. 11 Answer Appendix.**
- Logical** Draw a Venn diagram to represent the possible outcomes of the experiment. **See Ch. 11 Answer Appendix.**
- Analytical** How many possible outcomes are there? **20**
- Verbal** Could you use the Fundamental Counting Principle to determine the number of outcomes? Explain. **Sample answer: No; since the second stage of the experiment depends on what happens in the first stage of the experiment, you cannot multiply the number of outcomes for each stage. You have to find the number of possible outcomes for each stage and add them.**



8	ايجاد احتمالات المتممات وحل تطبيقات عليها	16 to 27	540
	Find probabilities of complements		544/ English book

درس 7-7

Example 4 Determine the probability of each event.

16. rolling a pair of dice and not getting a 3
17. drawing a card from a standard deck and not getting a diamond
18. flipping a coin and not landing on heads
19. spinning a spinner numbered 1–8 and not landing on 5
20. Mansour bought 20 books. If a total of 500 books were sold, what is the probability that Mansour will get a damaged book?

21. JOBS Of young workers aged 18 to 25, 71% are paid by the hour. If two people are randomly chosen out of a group of 100 young workers, what is the probability that exactly one is paid by the hour?

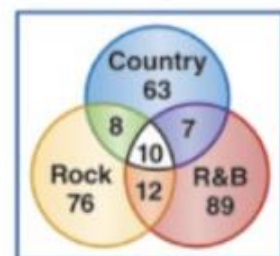
Example 5 **22. RECYCLING** Suppose 31% of Americans recycle. If two Americans are chosen randomly from a group of 50, what is the probability that at most one of them recycles?

B **CARDS** Suppose you pull a card from a standard 52-card deck. Find the probability of each event.

23. The card is a 4.
24. The card is red.
25. The card is a face card.
26. The card is not a face card.

C **27. MUSIC** A school carried out a survey of 265 students to see which types of music students would want played at a school dance. The results are shown in the Venn Diagram. Find each probability.

- a. $P(\text{country or R\&B})$
- b. $P(\text{rock and country or R\&B and rock})$
- c. $P(\text{R\&B but not rock})$
- d. $P(\text{all three})$



Answers:

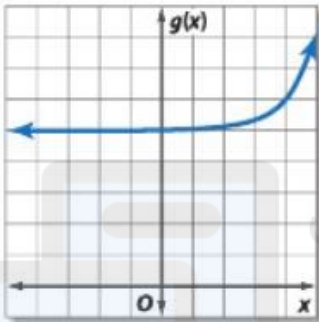
16. rolling a pair of dice and not getting a 3 $\frac{25}{36}$ or about 69.4%
17. drawing a card from a standard deck and not getting a diamond $\frac{3}{4}$ or about 75%
18. flipping a coin and not landing on heads $\frac{1}{2}$ or about 50%
19. spinning a spinner numbered 1–8 and not landing on 5 $\frac{7}{8}$ or 87.5%
20. Mansour bought 20 books. If a total of 500 books were sold, what is the probability that Mansour will get a damaged book? $\frac{24}{25}$ or about 96%
21. **JOBS** Of young workers aged 18 to 25, 71% are paid by the hour. If two people are randomly chosen out of a group of 100 young workers, what is the probability that exactly one is paid by the hour?
22. **RECYCLING** Suppose 31% of Americans recycle. If two Americans are chosen randomly from a group of 50, what is the probability that at most one of them recycles? about 90.4%
23. The card is a 4. $\frac{1}{13}$ or 7.7%
24. The card is red. $\frac{1}{2}$ or 50%
25. The card is a face card. $\frac{3}{11}$ or 23.1%
26. The card is not a face card. $\frac{10}{11}$ or 76.9%
27. **MUSIC** A school carried out a survey of 265 students to see which types of music students would want played at a school dance. The results are shown in the Venn Diagram. Find each probability.
 - a. $P(\text{country or R\&B})$ 71.3%
 - b. $P(\text{rock and country or R\&B and rock})$ 11.3%
 - c. $P(\text{R\&B but not rock})$ 36.2%
 - d. $P(\text{all three})$ 3.8%

9	رسم منحنيات النمو الأسية	13 to 18	564
	Draw exponential growth curves.	30 to 32	568/ English book

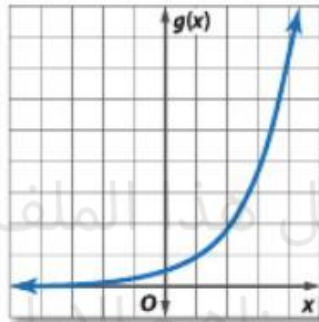
درس 8-1

C For each graph, $f(x)$ is the parent function and $g(x)$ is a transformation of $f(x)$. Use the graph to determine the equation of $g(x)$.

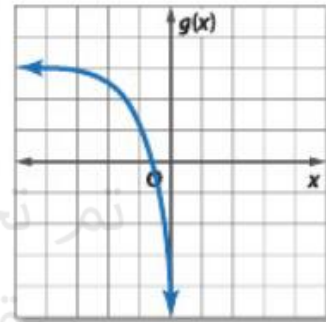
30. $f(x) = 3^x$



31. $f(x) = 2^x$



32. $f(x) = 4^x$



Blank lined area for student work.

Answers:

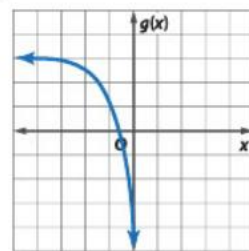
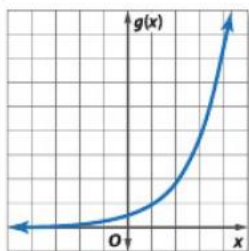
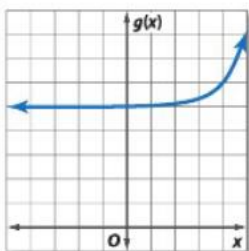
C For each graph, $f(x)$ is the parent function and $g(x)$ is a transformation of $f(x)$. Use the graph to determine the equation of $g(x)$.

30. $f(x) = 3^x$

31. $f(x) = 2^x$

32. $f(x) = 4^x$ $g(x) = -2(4)^{x+1} + 3$

$g(x) = 3^{x-4} + 5$



10	ايجاد قيمة التعابير اللوغاريتمية	13 to 36	580
	Evaluate logarithmic functions.		584/ English book

درس 3-8

Practice and Problem Solving

Example 1 Write each equation in exponential form.

13. $\log_2 16 = 4$

14. $\log_7 343 = 3$

15. $\log_9 \frac{1}{81} = -2$

16. $\log_3 \frac{1}{27} = -3$

17. $\log_{12} 144 = 2$

18. $\log_9 1 = 0$

Example 2 Write each equation in logarithmic form.

19. $9^{-1} = \frac{1}{9}$

20. $6^{-3} = \frac{1}{216}$

21. $2^8 = 256$

22. $4^6 = 4096$

23. $27^{\frac{2}{3}} = 9$

24. $25^{\frac{3}{2}} = 125$

Example 3 Evaluate each expression.

25. $\log_3 \frac{1}{9}$

26. $\log_4 \frac{1}{64}$

27. $\log_8 512$

28. $\log_6 216$

29. $\log_{27} 3$

30. $\log_{32} 2$

31. $\log_9 3$

32. $\log_{121} 11$

33. $\log_{\frac{1}{5}} 3125$

34. $\log_{\frac{1}{8}} 512$

35. $\log_{\frac{1}{3}} 81$

36. $\log_{\frac{1}{6}} \frac{1}{216}$

Answers:

Practice and Problem Solving

Example 1 Write each equation in exponential form.

13. $\log_2 16 = 4$ $2^4 = 16$

14. $\log_7 343 = 3$ $7^3 = 343$

15. $\log_9 \frac{1}{81} = -2$ $9^{-2} = \frac{1}{81}$

16. $\log_3 \frac{1}{27} = -3$ $3^{-3} = \frac{1}{27}$

17. $\log_{12} 144 = 2$ $12^2 = 144$

18. $\log_9 1 = 0$ $9^0 = 1$

Example 2 Write each equation in logarithmic form.

19. $9^{-1} = \frac{1}{9}$ $\log_9 \frac{1}{9} = -1$

20. $6^{-3} = \frac{1}{216}$ $\log_6 \frac{1}{216} = -3$

21. $2^8 = 256$ $\log_2 256 = 8$

22. $4^6 = 4096$ $\log_4 4096 = 6$

23. $27^{\frac{2}{3}} = 9$ $\log_{27} 9 = \frac{2}{3}$

24. $25^{\frac{3}{2}} = 125$ $\log_{25} 125 = \frac{3}{2}$

Example 3 Evaluate each expression.

25. $\log_3 \frac{1}{9}$ -2

26. $\log_4 \frac{1}{64}$ -3

27. $\log_8 512$ 3

28. $\log_6 216$ 3

29. $\log_{27} 3$ $\frac{1}{3}$

30. $\log_{32} 2$ $\frac{1}{5}$

31. $\log_9 3$ $\frac{1}{2}$

32. $\log_{121} 11$ $\frac{1}{2}$

33. $\log_{\frac{1}{5}} 3125$ -5

34. $\log_{\frac{1}{8}} 512$ -3

35. $\log_{\frac{1}{3}} 81$ 4

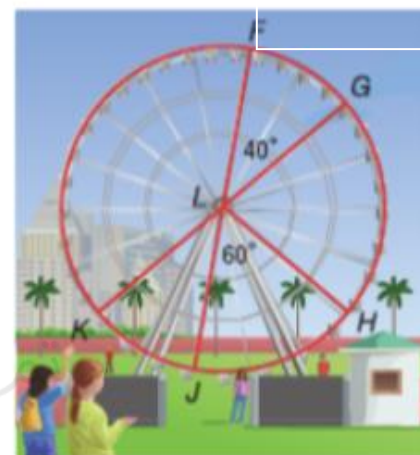
36. $\log_{\frac{1}{6}} \frac{1}{216}$ 3

11	إيجاد أطوال الأقواس. Find arc lengths.	26 to 41	335
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درس 5-2

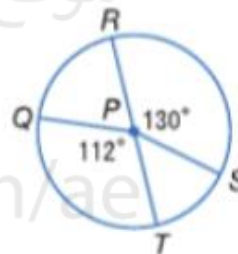
Examples 2, 4 ENTERTAINMENT Use the Ferris wheel shown to find each measure.

- | | |
|----------------------|----------------------|
| 26. $m\widehat{FG}$ | 27. $m\widehat{JH}$ |
| 28. $m\widehat{JKF}$ | 29. $m\widehat{JFH}$ |
| 30. $m\widehat{GHF}$ | 31. $m\widehat{GHK}$ |
| 32. $m\widehat{HK}$ | 33. $m\widehat{JHG}$ |
| 34. $m\widehat{KFH}$ | 35. $m\widehat{HGF}$ |



Example 5 Use $\odot P$ to find the length of each arc. Round to the nearest hundredth.

36. \widehat{RS} , if the radius is 2 centimeters
37. \widehat{QT} , if the diameter is 9 centimeters
38. \widehat{QR} , if $PS = 4$ millimeters
39. \widehat{RS} , if $RT = 15$ centimeters
40. \widehat{QRS} , if $RT = 11$ meters
41. \widehat{RTS} , if $PQ = 3$ meters



Answers:

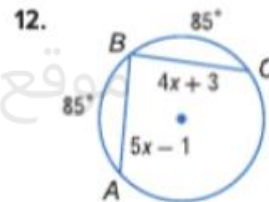
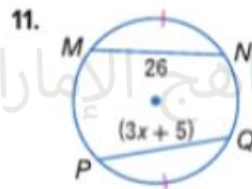
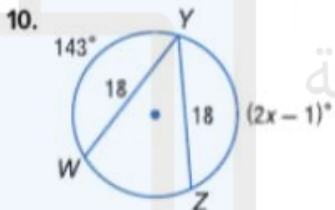
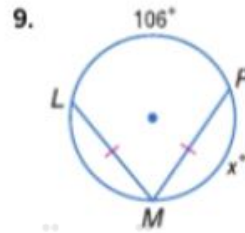
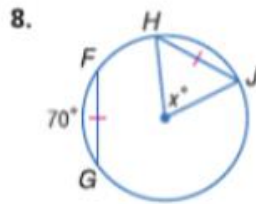
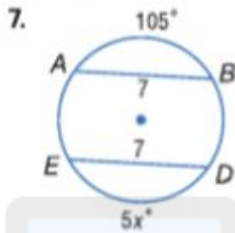
- | | |
|--|---------------------------------|
| 26. $m\widehat{FG}$ 40 | 27. $m\widehat{JH}$ 60 |
| 28. $m\widehat{JKF}$ 180 | 29. $m\widehat{JFH}$ 300 |
| 30. $m\widehat{GHF}$ 320 | 31. $m\widehat{GHK}$ 180 |
| 32. $m\widehat{HK}$ 100 | 33. $m\widehat{JHG}$ 220 |
| 34. $m\widehat{KFH}$ 260 | 35. $m\widehat{HGF}$ 120 |
| 36. \widehat{RS} , if the radius is 2 centimeters 4.54 cm | |
| 37. \widehat{QT} , if the diameter is 9 centimeters 8.80 cm | |
| 38. \widehat{QR} , if $PS = 4$ millimeters 4.75 mm | |
| 39. \widehat{RS} , if $RT = 15$ centimeters 17.02 cm | |
| 40. \widehat{QRS} , if $RT = 11$ meters 19.01 m | |
| 41. \widehat{RTS} , if $PQ = 3$ meters 12.04 m | |

12	التعرف على العلاقات بين الأقواس والأوتار واستخدامها.	7 to 14	343
	Recognize and use relationships between arcs and chords		

درس 5-3

Practice and Problem Solving

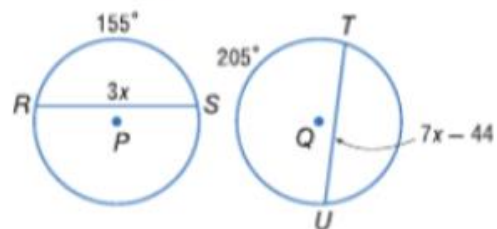
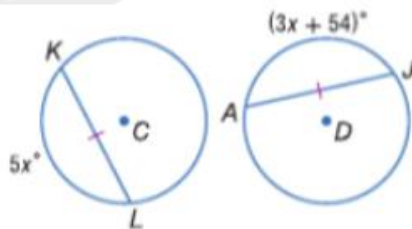
Examples 1–2 ALGEBRA Find the value of x .



13. $\odot C \cong \odot D$

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14. $\odot P \cong \odot Q$



Answers:

7. 21

8. 70

9. 127

10. 72

11. 7

12. 4

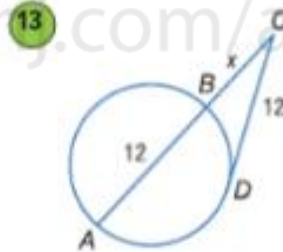
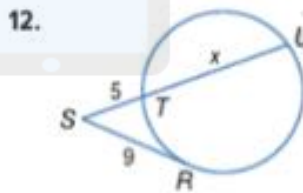
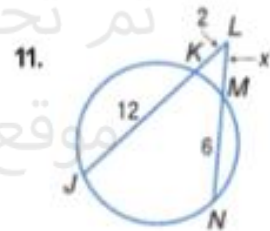
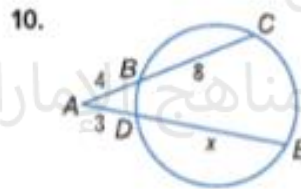
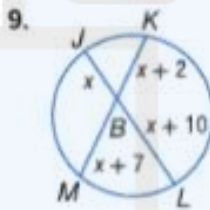
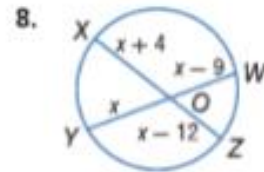
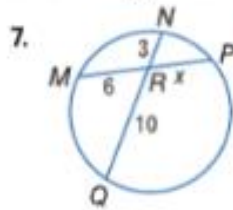
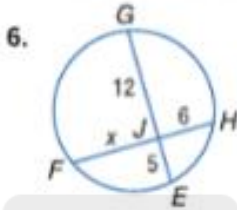
13. 27

14. 11

Practice and Problem Solving

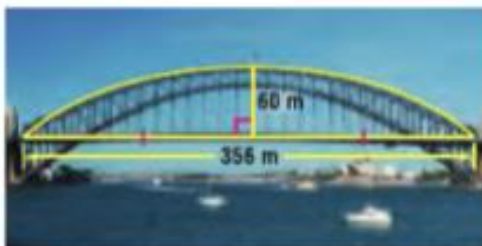
Examples 1, 3 and 4

Find x to the nearest tenth. Assume that segments that appear to be tangent are tangent.



Example 2

14. **BRIDGES** What is the diameter of the circle containing the arc of the Sydney Harbour Bridge shown? Round to the nearest tenth.



15. **CAKES** Huda is serving cake at a dinner party. If the dimensions of the remaining cake are shown below, what was the original diameter of the cake?



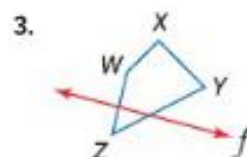
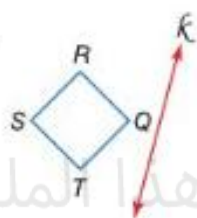
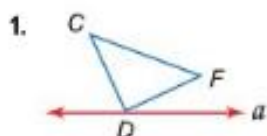
Answers 6- 15:

6. 10 7. 5 8. 48 9. 14 10. 13 11. 3.1 12. 11.2 13. 7.4 14. 588.1cm 15. 13cm

Check Your Understanding

Example 1

Copy the figure and the given line of reflection. Then draw the reflected image in this line using a ruler.



تم تحميل هذا الملف من موقع المناهج الإماراتية

Example 2

4. **SPORTING EVENTS** Ahmed is waiting at a café for a friend to bring him a ticket to a sold-out sporting event. At what point P along the street should the friend try to stop his car to minimize the distance Ahmed will have to walk from the café, to the car, and then to the arena entrance? Draw a diagram.

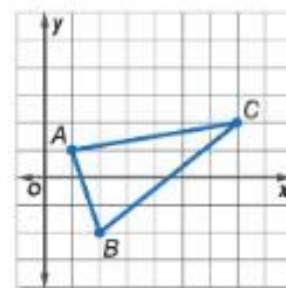


Example 3

Graph $\triangle ABC$ and its image in the given line.

5. $y = -2$

6. $x = 3$



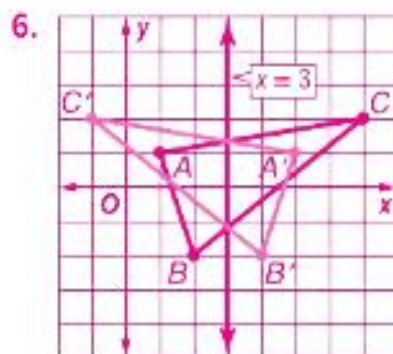
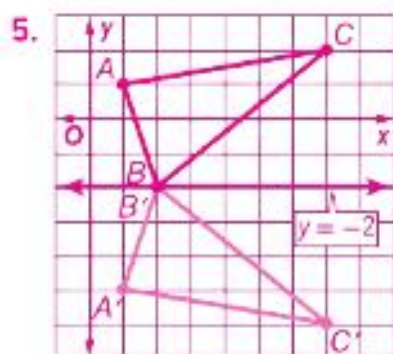
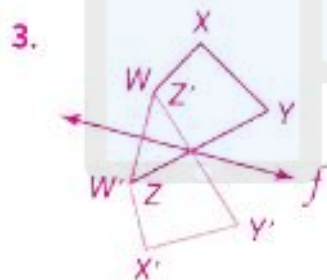
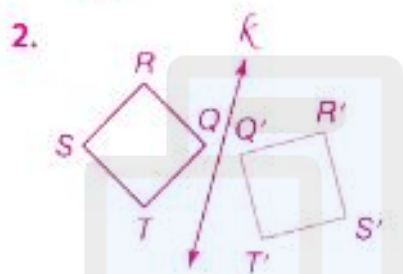
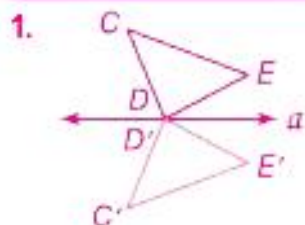
Examples 4-5

Graph each figure and its image under the given reflection.

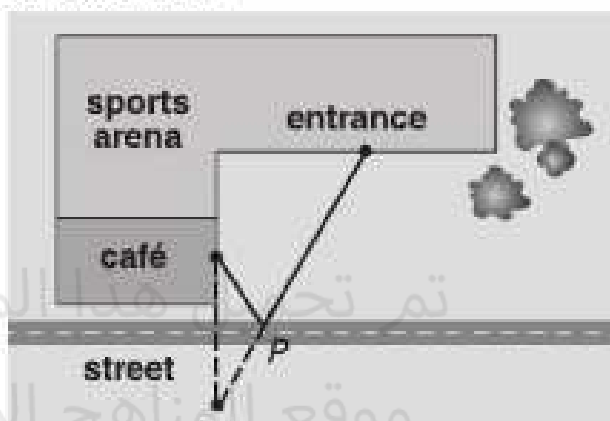
7. $\triangle XYZ$ with vertices $X(0, 4)$, $Y(-3, 4)$, and $Z(-4, -1)$ in the y -axis
8. $\square QRST$ with vertices $Q(-1, 4)$, $R(4, 4)$, $S(3, 1)$, and $T(-2, 1)$ in the x -axis
9. quadrilateral $JKLM$ with vertices $J(-3, 1)$, $K(-1, 3)$, $L(1, 3)$, and $M(-3, -1)$ in the line $y = x$

Answers: 15 - 24

درس 6-1



4. Sample answer:



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15	إيجاد احتمالات الأحداث المستقلة وغير المستقلة وحل تطبيقات عليها	6 to 13	526
	Find probabilities of independent and dependent events		529/ English book

Practice and Problem Solving

Examples 1–3 REASONING Determine whether the events are *independent* or *dependent*. Then find the probability.

- In a game, you roll an even number on a die and then spin a spinner numbered 1 through 5 and get an odd number.
- An ace is drawn, without replacement, from a deck of 52 cards. Then, a second ace is drawn.
- In a bag of 3 green and 4 blue marbles, a blue marble is drawn and not replaced. Then, a second blue marble is drawn.
- You roll two dice and get a 5 each time.

- GAMES** In a game, the spinner at the right is spun and a coin is tossed. What is the probability of getting an even number on the spinner and the coin landing on tails?



- GIFTS** Najat's class is having a gift exchange. Najat will draw first and her friend Najla second. If there are 18 students participating, what is the probability that Najat and Najla draw each other's names?
- VACATION** A work survey found that 8 out of every 10 employees went on vacation last summer. If 3 employees' names are randomly chosen, with replacement, what is the probability that all 3 employees went on vacation last summer?
- CAMPAIGNS** The table shows the number of each color of Student Council campaign buttons Nisreen has to give away. If given away at random, what is the probability that the first and second buttons given away are both red?

Button Color	Amount
blue	20
white	15
red	25
black	10

Answers 6- 13:

- In a game, you roll an even number on a die and then spin a spinner numbered 1 through 5 and get an odd number. **independent; $\frac{3}{10}$ or 30%**
- An ace is drawn, without replacement, from a deck of 52 cards. Then, a second ace is drawn. **dependent; $\frac{1}{221}$ or 0.5%**
- In a bag of 3 green and 4 blue marbles, a blue marble is drawn and not replaced. Then, a second blue marble is drawn. **dependent; $\frac{2}{7}$ or about 29%**
- You roll two dice and get a 5 each time. **independent; $\frac{1}{36}$ or about 3%**

on tails? **$\frac{1}{4}$ or 25%**

- GIFTS** Najat's class is having a gift exchange. Najat will draw first and her friend Najla second. If there are 18 students participating, what is the probability that Najla and Najat draw each other's names? **$\frac{1}{306}$ or about 0.3%**



- VACATION** A work survey found that 8 out of every 10 employees went on vacation last summer. If 3 employees' names are randomly chosen, with replacement, what is the probability that all 3 employees went on vacation last summer? **See margin.**

- CAMPAIGNS** The table shows the number of each color of Student Council campaign buttons Nisreen has to give away. If given away at random, what is the probability that the first and second buttons given away are both red? **$\frac{20}{161}$ or about 12%**

Button Color	Amount
blue	20
white	15
red	25
black	10

16	رسم منحنيات الاضمحلال الأسية	26 to 29	564
	Draw curves of exponential decay.		568/ English book

درس 8-1

- 26. ATTENDANCE** The attendance for a basketball team declined at a rate of 5% per game throughout a losing season. Graph the function modeling the attendance if 15 home games were played and 23,500 people were at the first game.
- 27. PHONES** The function $P(x) = 2.28(0.9^x)$ can be used to model the number of pay phones in millions x years since 1999.
- Classify the function as either exponential *growth* or *decay*, and identify the growth or decay factor. Then graph the function.
 - Explain what the $P(x)$ -intercept and the asymptote represent in this situation.
- 28. HEALTH** Each day, 10% of a certain drug dissipates from the system.
- Classify the function representing this situation as either exponential *growth* or *decay*, and identify the growth or decay factor. Then graph the function.
 - How much of the original amount remains in the system after 9 days?
 - If a second dose should not be taken if more than 50% of the original amount is in the system, when should the label say it is safe to redose? Design the label and explain your reasoning.
- 29. REASONING** A sequence of numbers follows a pattern in which the next number is 125% of the previous number. The first number in the pattern is 18.
- Write the function that represents the situation.
 - Classify the function as either exponential *growth* or *decay*, and identify the growth or decay factor. Then graph the function for the first 10 numbers.
 - What is the value of the tenth number? Round to the nearest whole number.

هيكل عاشر متقدم الفصل الثاني -2023

16

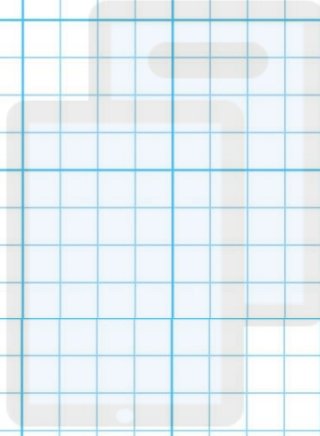
رسم منحنيات الاضمحلال الأسية
Draw curves of exponential decay.

26 to 29

564

568/ English book

درس 1-8



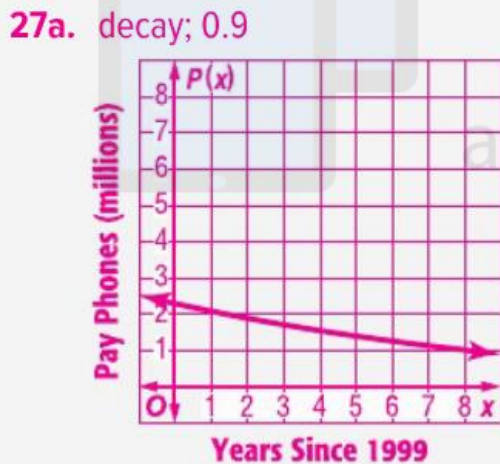
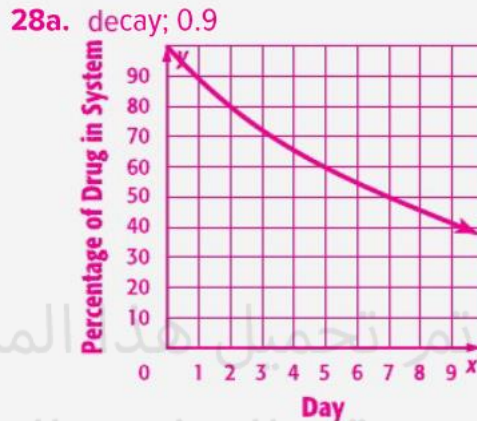
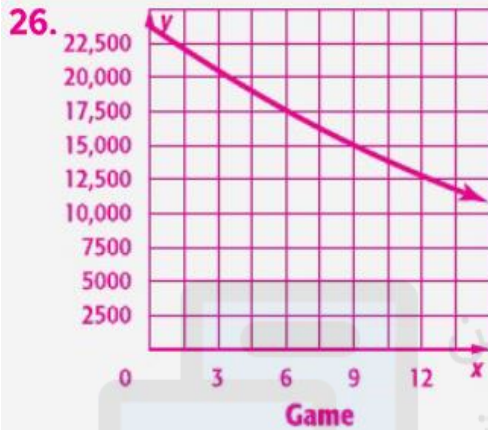
تم تحميل هذا الملف من
موقع المناهج الإماراتية

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16	رسم منحنيات الاضمحلال الأسية	26 to 29	564
	Draw curves of exponential decay.		568/ English book

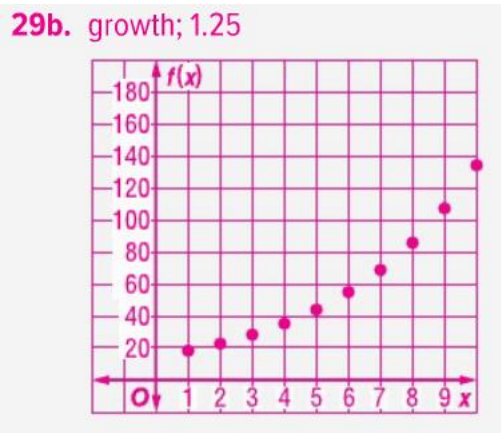
Answers: 26-29

درس 8-1



28. **HEALTH** Each day, 10% of a certain drug dissipates from the system.
- Classify the function representing this situation as either exponential *growth* or *decay*, and identify the growth or decay factor. Then graph the function. **See margin.**
 - How much of the original amount remains in the system after 9 days? **a little less than 40%**
 - If a second dose should not be taken if more than 50% of the original amount is in the system, when should the label say it is safe to redose? Design the label and explain your reasoning. **Sample answer: The 7th day; see students' work.**
29. **REASONING** A sequence of numbers follows a pattern in which the next number is 125% of the previous number. The first number in the pattern is 18.
- Write the function that represents the situation. $f(x) = 18(1.25)^{x-1}$
 - Classify the function as either exponential *growth* or *decay*, and identify the growth or decay factor. Then graph the function for the first 10 numbers. **See margin.**
 - What is the value of the tenth number? Round to the nearest whole number. **134**

27b. The $P(x)$ -intercept represents the number of pay phones in 1999. The asymptote is the x -axis. The number of pay phones can approach 0, but will never equal 0. This makes sense as there will probably always be a need for some pay phones.



17	حل المعادلات الأسية.	9 to 14	572
	Solve exponential equations		576/ English book

درس 8-2

Practice and Problem Solving

Extra Practice is on page R7.

Example 1 Solve each equation.

9. $8^{4x+2} = 64$

10. $5^{x-6} = 125$

11. $81^{a+2} = 3^{3a+1}$

12. $256^{b+2} = 4^{2-2b}$

13. $9^{3c+1} = 27^{3c-1}$

14. $8^{2y+4} = 16^{y+1}$

Answers:

Practice and Problem Solving

Extra Practice is on page R7.

Example 1 Solve each equation.

9. $8^{4x+2} = 64$ **0**

10. $5^{x-6} = 125$ **9**

11. $81^{a+2} = 3^{3a+1}$ **-7**

12. $256^{b+2} = 4^{2-2b}$ **-1**

13. $9^{3c+1} = 27^{3c-1}$ **$\frac{5}{3}$**

14. $8^{2y+4} = 16^{y+1}$ **-4**

18	حل المتباينات الأسية.	24 to 29	572
	Solve exponential inequalities		576/ English book

Example 4 Solve each inequality.

24. $625 \geq 5^a + 8$

25. $10^{5b+2} > 1000$

26. $\left(\frac{1}{64}\right)^{c-2} < 32^{2c}$

27. $\left(\frac{1}{27}\right)^{2d-2} \leq 81^{d+4}$

28. $\left(\frac{1}{9}\right)^{3t+5} \geq \left(\frac{1}{243}\right)^{t-6}$

29. $\left(\frac{1}{36}\right)^{w+2} < \left(\frac{1}{216}\right)^{4w}$

Answers:

Example 4 Solve each inequality.

24. $625 \geq 5^a + 8$ **$\{a \mid a \leq -4\}$**

25. $10^{5b+2} > 1000$ **$\{b \mid b > \frac{1}{5}\}$**

26. $\left(\frac{1}{64}\right)^{c-2} < 32^{2c}$ **$\{c \mid c > \frac{3}{4}\}$**

27. $\left(\frac{1}{27}\right)^{2d-2} \leq 81^{d+4}$ **$\{d \mid d \geq -1\}$**

28. $\left(\frac{1}{9}\right)^{3t+5} \geq \left(\frac{1}{243}\right)^{t-6}$ **$\{t \mid t \leq -40\}$**

29. $\left(\frac{1}{36}\right)^{w+2} < \left(\frac{1}{216}\right)^{4w}$ **$\{w \mid w < \frac{2}{5}\}$**

19	حل المعادلات اللوغاريتمية.	8 to 19	588
	Solve logarithmic equations		592/ English book

Practice and Problem Solving

Examples 1–2 **STRUCTURE** Solve each equation.

8. $\log_{81} x = \frac{3}{4}$

9. $\log_{25} x = \frac{5}{2}$

10. $\log_8 \frac{1}{2} = x$

11. $\log_6 \frac{1}{36} = x$

12. $\log_x 32 = \frac{5}{2}$

13. $\log_x 27 = \frac{3}{2}$

14. $\log_3 (3x + 8) = \log_3 (x^2 + x)$

15. $\log_{12} (x^2 - 7) = \log_{12} (x + 5)$

16. $\log_6 (x^2 - 6x) = \log_6 (-8)$

17. $\log_9 (x^2 - 4x) = \log_9 (3x - 10)$

18. $\log_4 (2x^2 + 1) = \log_4 (10x - 7)$

19. $\log_7 (x^2 - 4) = \log_7 (-x + 2)$

Answers:

8. $\log_{81} x = \frac{3}{4}$ **27**

9. $\log_{25} x = \frac{5}{2}$ **3125**

10. $\log_8 \frac{1}{2} = x$ **$-\frac{1}{3}$**

11. $\log_6 \frac{1}{36} = x$ **-2**

12. $\log_x 32 = \frac{5}{2}$ **4**

13. $\log_x 27 = \frac{3}{2}$ **9**

14. $\log_3 (3x + 8) = \log_3 (x^2 + x)$ **-2 or 4**

15. $\log_{12} (x^2 - 7) = \log_{12} (x + 5)$ **4 or -3**

16. $\log_6 (x^2 - 6x) = \log_6 (-8)$ **no solution**

17. $\log_9 (x^2 - 4x) = \log_9 (3x - 10)$ **5**

18. $\log_4 (2x^2 + 1) = \log_4 (10x - 7)$ **1 or 4**

19. $\log_7 (x^2 - 4) = \log_7 (-x + 2)$ **-3**

20	تبسيط التعابير وإيجاد قيمها باستخدام خواص اللوغاريتمات.	12 to 17	596
	Simplify and evaluate expressions using the properties of logarithm		600/ English book

Practice and Problem Solving

Examples 1–2 Use $\log_4 2 = 0.5$, $\log_4 3 \approx 0.7925$, and $\log_4 5 \approx 1.1610$ to approximate the value of each expression.

12. $\log_4 30$

13. $\log_4 20$

14. $\log_4 \frac{2}{3}$

15. $\log_4 \frac{4}{3}$

16. $\log_4 9$

17. $\log_4 8$

Answers:

12. $\log_4 30$ **2.4535**

13. $\log_4 20$ **2.1610**

14. $\log_4 \frac{2}{3}$ **-0.2925**

15. $\log_4 \frac{4}{3}$ **0.2075**

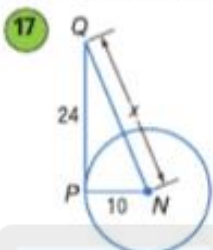
16. $\log_4 9$ **1.5850**

17. $\log_4 8$ **1.5**

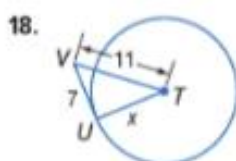
Answers:

درس 5-5

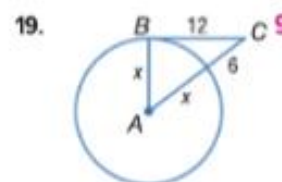
Examples 3-4 Find x . Assume that segments that appear to be tangent are tangent. Round to the nearest tenth if necessary.



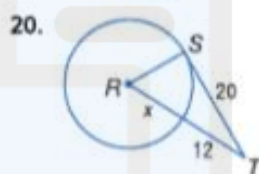
26



8.5



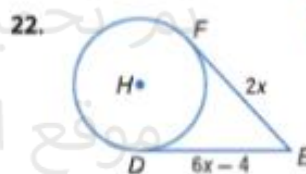
9



10.7



4

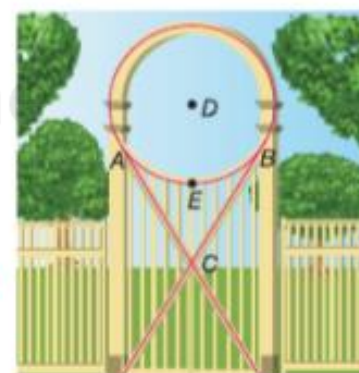


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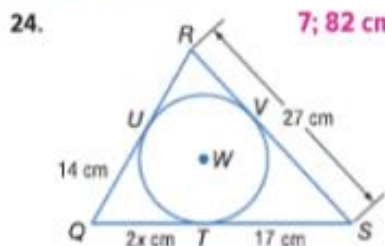
23. **ARBORS** In the arbor shown, \overline{AC} and \overline{BC} are tangents to $\odot D$. The radius of the circle is 26 centimeters and $EC = 20$ centimeters. Find each measure to the nearest hundredth.

a. AC 37.95 cm

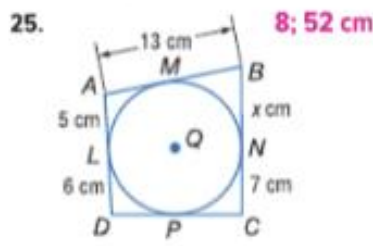
b. BC 37.95 cm



Example 5 **SENSE-MAKING** Find the value of x . Then find the perimeter.

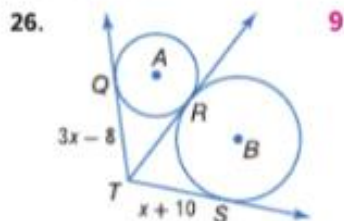


7; 82 cm

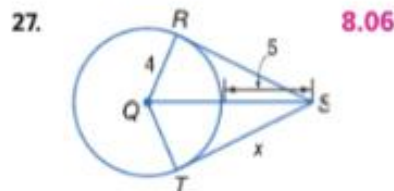


8; 52 cm

B Find x to the nearest hundredth. Assume that segments that appear to be tangent are tangent.



9



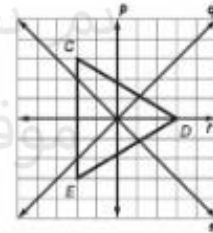
8.06

Practice and Problem Solving

Example 1 **REGULARITY** State whether the figure appears to have line symmetry. Write *yes* or *no*. If so, copy the figure, draw all lines of symmetry, and state their number.

9.  10.  11.  12.  **no**

13. Triangle *CDE* is drawn in the plane. Which of the lines is a line of symmetry?



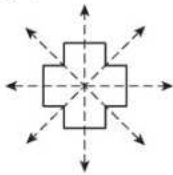
State whether the figure has rotational symmetry. Write *yes* or *no*. If so, copy the figure, locate the center of symmetry, and state the order and magnitude of symmetry.

14.  15.  16.  17. 

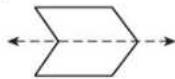
Answers:

Lesson 6-5

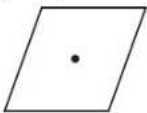
10. yes; 4



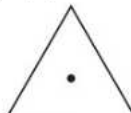
11. yes; 1



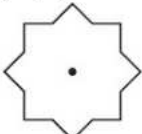
14. yes; 2; 180°



16. yes; 3; 120°



17. yes; 8; 45°

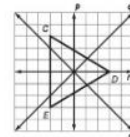


Practice and Problem Solving

Example 1 **REGULARITY** State whether the figure appears to have line symmetry. Write *yes* or *no*. If so, copy the figure, draw all lines of symmetry, and state their number.





9.  **no** 10.  11.  12.  **no**

13. Triangle *CDE* is drawn in the plane. Which of the lines is a line of symmetry? **r**



14. See Ch. 6 Answer Appendix.

State whether the figure has rotational symmetry. Write *yes* or *no*. If so, copy the figure, locate the center of symmetry, and state the order and magnitude of symmetry.

14.  15.  **no** 16.  17.  **16–17. See Ch. 6 Answer Appendix.**

23	استخدام التباديل مع الاحتمالات	6 to 10	493
	Use permutations with probability		

Practice and Problem Solving

Example 1

6. **CONCERTS** Hamsa and Halima are going to a concert with their high school's key club. If they choose a seat on the row below at random, what is the probability that Halima will be in seat C11 and Hessa will be in C12?



7. **FAIRS** Badr and Bilal each bought one race ticket at the state fair. If 50 tickets were randomly sold, what is the probability that Badr got ticket 14 and Bilal got ticket 23?

Example 2

8. **MODELING** The table shows the finalists for a floor exercises competition. The order in which they will perform will be chosen randomly.
- What is the probability that Khadija, Khawla, and Houriyya are the first 3 gymnasts to perform, in any order?
 - What is the probability that Khadija is first, Khawla is second, and Houriyya is third?

Floor Exercises Finalists
Hamdah
Houriyya
Khadija
Khawla
Rana
Reham
Sally

9. **JOBS** A store randomly assigns their employees work identification numbers to track productivity. Each number consists of 5 digits ranging from 1–9. If the digits cannot repeat, find the probability that a randomly generated number is 25938.
10. **GROUPS** Two people are chosen randomly from a group of ten. What is the probability that Jassim was selected first and Jamal second?

Answers:

Practice and Problem Solving

Example 1

6. **CONCERTS** Hamsa and Halima are going to a concert with their high school's key club. If they choose a seat on the row below at random, what is the probability that Halima will be in seat C11 and Hessa will be in C12?



$\frac{1}{132}$

7. **FAIRS** Badr and Bilal each bought one race ticket at the state fair. If 50 tickets were randomly sold, what is the probability that Badr got ticket 14 and Bilal got ticket 23?

$\frac{1}{2450}$

Example 2

8. **MODELING** The table shows the finalists for a floor exercises competition. The order in which they will perform will be chosen randomly.
- What is the probability that Khadija, Khawla, and Houriyya are the first 3 gymnasts to perform, in any order?
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9. **JOBS** A store randomly assigns their employees work identification numbers to track productivity. Each number consists of 5 digits ranging from 1–9. If the digits cannot repeat, find the probability that a randomly generated number is 25938.

Floor Exercises Finalists
Hamdah
Houriyya
Khadija
Khawla
Rana
Reham
Sally

$\frac{1}{35}$

$\frac{1}{210}$

$\frac{1}{15,120}$

10. **GROUPS** Two people are chosen randomly from a group of ten. What is the probability that Jassim was selected first and Jamal second?

$\frac{1}{90}$

**Solve By Steps, Included In Writing Exam