شكراً لتحميلك هذا الملف من موقع المناهج الإماراتية

تجميعة أسئلة مراجعة وفق الهيكل الوزاري ريفيل

تاريخ نشر الملف على موقع المناهج: 2023-12-04 04:18:32 | اسم المدرس: Toubeh Hanan

التواصل الاجتماعي بحسب الصف العاشر المتقدم

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

1	أسئلة مراجعة نهائية وفق الهيكل الوزاري
2	حل تجميعة أسئلة وفق الهيكل الوزاري ريفيل
3	تجميعة أسئلة وفق الهيكل الوزاري ريفيل
4	مراجعة نهائية وفق الهيكل الوزاري
5	حل مراجعة الأسئلة المقالية وفق الهيكل الوزاري

MATH EOT FOR FINAL EXAM

Name :

Grade :

Section :

Term : 01

Year : 2023 - 2024

Grade : 10 Advance

Subject : Math

Teacher name : Hanan Toubeh

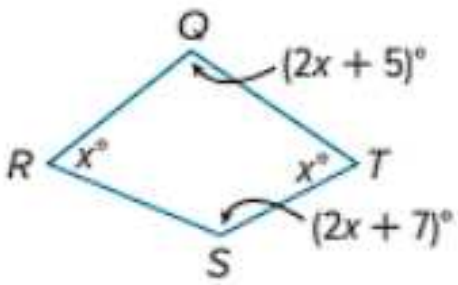
CHAPTER 2
QUADRILATERALS

2.1 – Angles of polygons

- **Find the measures of each interior angle**

WRITING

1.



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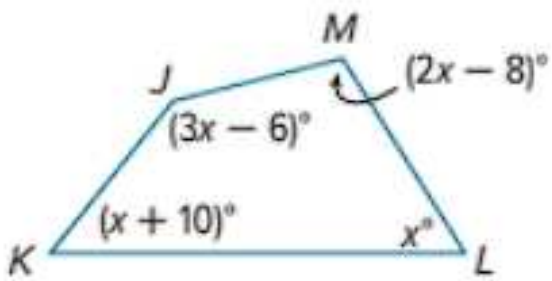


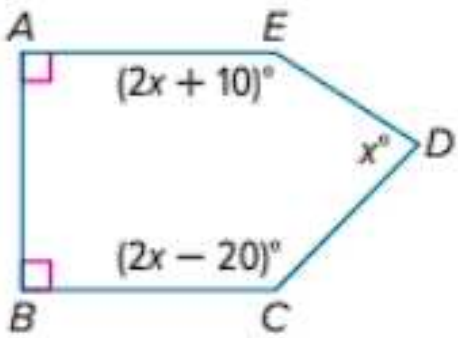
CHAPTER 2
QUADRILATERALS

2.1 – Angles of polygons

- **Find the measures of each interior angle**

WRITING

3.



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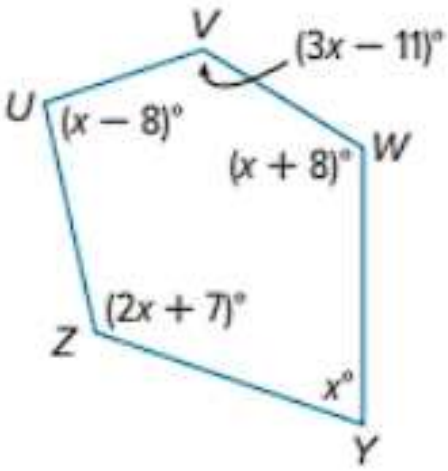


CHAPTER 2
QUADRILATERALS

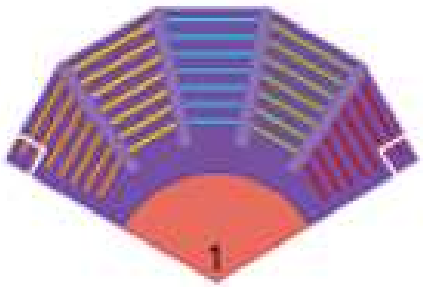
2.1 – Angles of polygons

- **Find the measures of each interior angle**

WRITING

5. ARCHITECTURE In the Uffizi gallery in Florence, Italy, there is a room built by Buontalenti called the Tribune (*La Tribuna* in Italian). This room is shaped like a regular octagon. What is the measure of the angle formed by two consecutive walls of the Tribune?

6. THEATER A theater floor plan is shown in the figure. The upper five sides are part of a regular dodecagon. Find $m\angle 1$.



CHAPTER 2
QUADRILATERALS

2.2 – Parallelograms

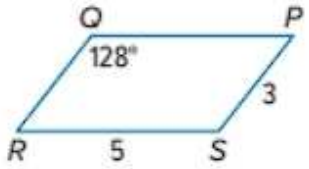
Use $\square PQRS$ to find each measure.

1. $m\angle R$

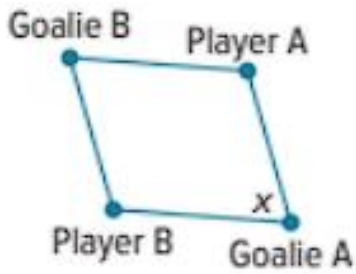
2. QR

3. QP

4. $m\angle S$



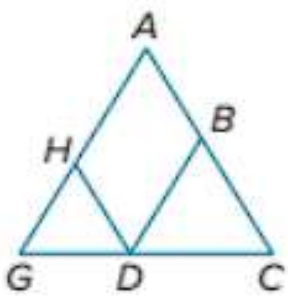
5. SOCCER Four soccer players are practicing a drill. Goalie A is facing Player B to receive the ball. Goalie A then turns $x°$ to face Player A to pass her the ball. If Goalie B is facing Player A to receive the ball, then through what angle measure should Goalie B turn to pass the ball to Player B?



PROOF **For 6–7, write a two-column proof.**

6. Given: $\square BDHA$, $\overline{CA} \cong \overline{CG}$

Prove: $\angle BDH \cong \angle G$

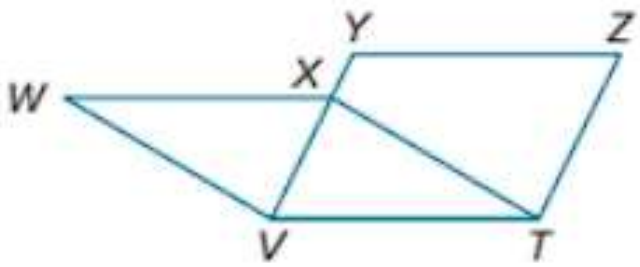


CHAPTER 2
QUADRILATERALS

2.2 – Parallelograms

7. **Given:** $WXTV$ and $YZTV$ are parallelograms.

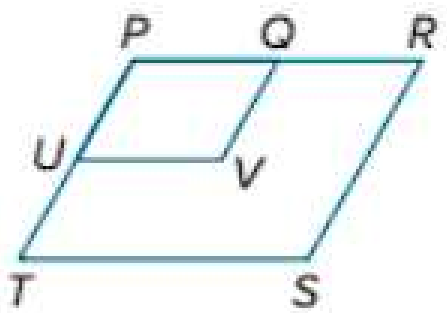
Prove: $\overline{WX} \cong \overline{YZ}$



8. Write a paragraph proof.

Given: $\square PRST$ and $\square PQVU$

Prove: $\angle V \cong \angle S$



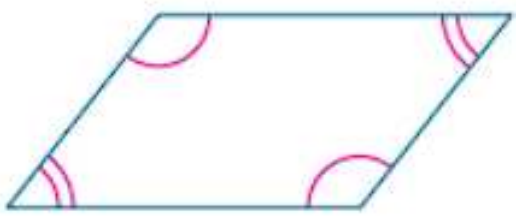
CHAPTER 2
QUADRILATERALS

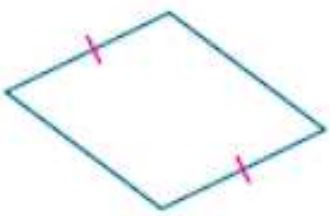
2.3 – Tests for Parallelograms

- **Determine whether each quadrilateral is a parallelogram. Justify your answer**

WRITING

1. 

2. 

3. 

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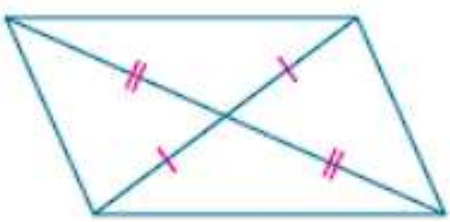
5. 

6. 

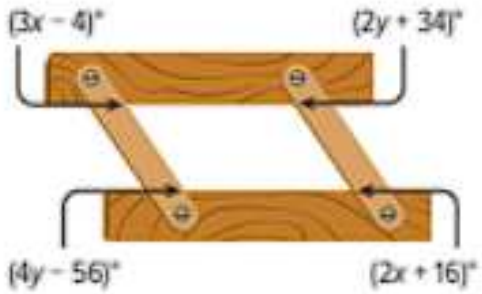
CHAPTER 2
QUADRILATERALS

2.3 – Tests for Parallelograms

WRITING

Example 2

7. ORGANIZATION The space between the hinges and trays of a collapsible tray organizer appears to be a parallelogram. Find the values of x and y so that the trays and hinges of the organizer form a parallelogram.



8. PATTERNS Many Native American rugs and blankets incorporate parallelograms into the designs. Find the values of x and y so that the quadrilateral shown is a parallelogram.

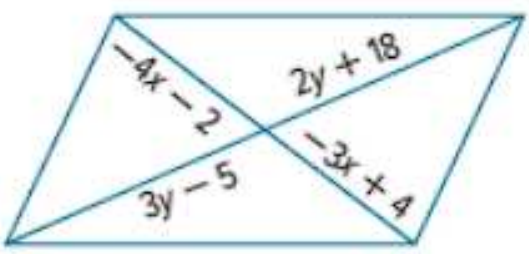
CHAPTER 2
QUADRILATERALS

2.3 – Tests for Parallelograms

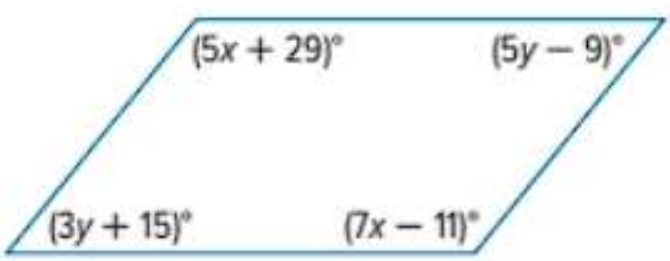
- **Find the value of x and y so that each quadrilateral is a parallelogram**

WRITING

9.



10.



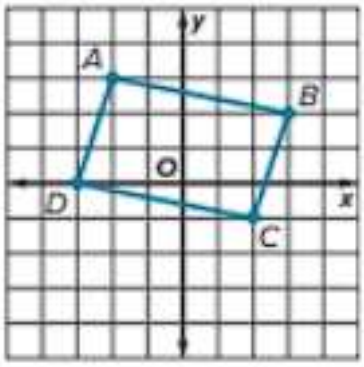
CHAPTER 2
QUADRILATERALS

2.3 – Tests for Parallelograms

- **Find the value of x and y so that each quadrilateral is a parallelogram**

WRITING

11. Determine whether *ABCD* is a parallelogram. Justify your answer.



CONSTRUCT ARGUMENTS **For Exercises 12–15, graph each quadrilateral with the given vertices. Determine whether the figure is a parallelogram. Justify your argument with the method indicated.**

12. *P*(0, 0), *Q*(3, 4), *S*(7, 4), *Y*(4, 0); Slope Formula

13. *S*(−2, 1), *R*(1, 3), *T*(2, 0), *Z*(−1, −2); Distance and Slope Formulas

CHAPTER 2
QUADRILATERALS

2.3 – Tests for Parallelograms

- **Find the value of x and y so that each quadrilateral is a parallelogram**

WRITING

CONSTRUCT ARGUMENTS **For Exercises 12–15, graph each quadrilateral with the given vertices. Determine whether the figure is a parallelogram. Justify your argument with the method indicated.**

14. $W(2, 5)$, $R(3, 3)$, $Y(-2, -3)$, $N(-3, 1)$; Midpoint Formula

15. $W(1, -4)$, $X(-4, 2)$, $Y(1, -1)$, and $Z(-2, -3)$; Slope Formula

CHAPTER 2
QUADRILATERALS

2.4 – Rectangles

Example 1

FENCING **X-braces are also used to provide support in rectangular fencing. If $AB = 6$ feet, $AD = 2$ feet, and $m\angle DAE = 65°$, find each measure. Round to the nearest tenth, if necessary.**

1. BC

2. DB

3. $m\angle CEB$

4. $m\angle EDC$

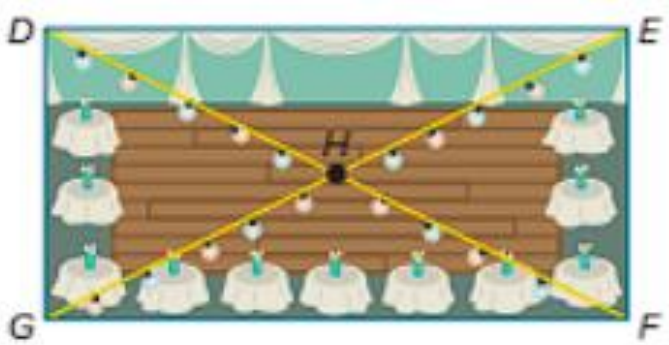
PROM The prom committee is decorating the venue for prom and wants to hang lights above the diagonals of the rectangular room. If $DH = 44.5$ feet, $EF = 39$ feet, and $m\angle GHF = 128°$, find each measure.

5. DG

6. GE

7. $m\angle EHF$

8. $m\angle HEF$

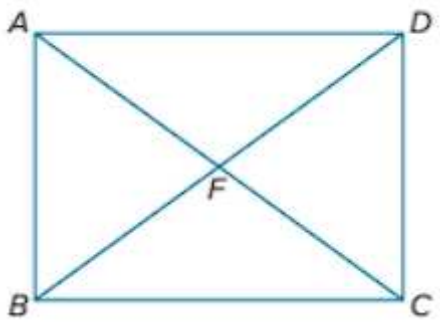


CHAPTER 2
QUADRILATERALS

2.4 – Rectangles

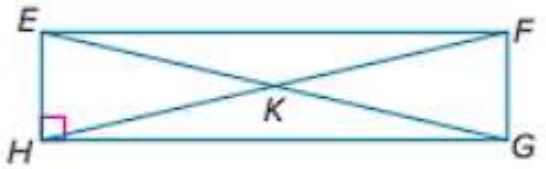
Example 2

9. Quadrilateral $ABCD$ is a rectangle. If $m\angle ADB = (4x + 8)°$ and $m\angle DBA = (6x + 12)°$, find the value of x.



Quadrilateral *EFGH* is a rectangle. Use the given information to find each measure.

10. If $m\angle FEG = 57°$, find $m\angle GEH$.



11. If $m\angle HGE = 13°$, find $m\angle FGE$.

12. If $FK = 32$ feet, find EG.

13. Find $m\angle HEF + m\angle EFG$.

14. If $EF = 4x - 6$ and $HG = x + 3$, find EF.

CHAPTER 2
QUADRILATERALS

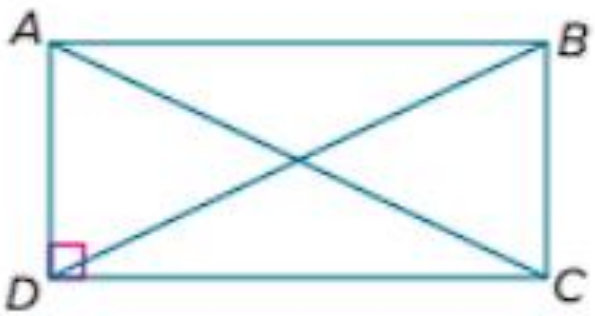
2.4 – Rectangles

Example 3

PROOF **Write a two-column proof.**

15. Given: *ABCD* is a rectangle.

Prove: $\triangle ADC \cong \triangle BCD$



CHAPTER 2
QUADRILATERALS

2.5 – Rhombi and square

Examples 1 and 2

Quadrilateral *ABCD* is a rhombus. Find each value or measure.

1. If $m\angle ABD = 60°$, find $m\angle BDC$.

2. If $AE = 8$, find AC.

3. If $AB = 26$ and $BD = 20$, find AE.

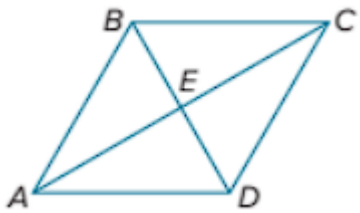
4. Find $m\angle CEB$.

5. If $m\angle CBD = 58°$, find $m\angle ACB$.

6. If $AE = 3x - 1$ and $AC = 16$, find x.

7. If $m\angle CDB = 6y°$ and $m\angle ACB = (2y + 10)°$, find the value of y.

8. If $AD = 2x + 4$ and $CD = 4x - 4$, find the value of x.

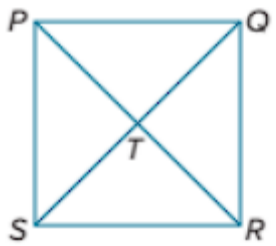


CHAPTER 2
QUADRILATERALS

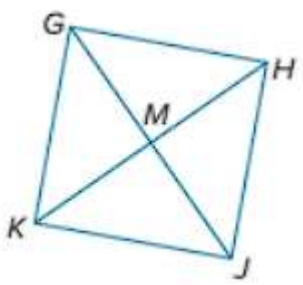
2.5 – Rhombi and square

Example 3

9. *PQRS* is a square. If $PR = 42$, find TR.



10. *GHJK* is a square. If $KM = 26.5$, find KH.



CHAPTER 2
QUADRILATERALS

2.6 – Trapezoids and kites

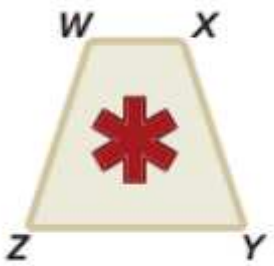
Example 1

1. SIGNS The medical sign shown is a trapezoidal prism. The front face of the sign is an isosceles trapezoid. $WX = 2x - 2$, $YZ = 2x + 6$, $WZ = 4x + 5$, and $XY = 5x - 3$.

a. Prove $x = 8$.

b. Find $m\angle Z$ if $m\angle W = 106°$.

c. Find the perimeter of the front face of the sign in inches.

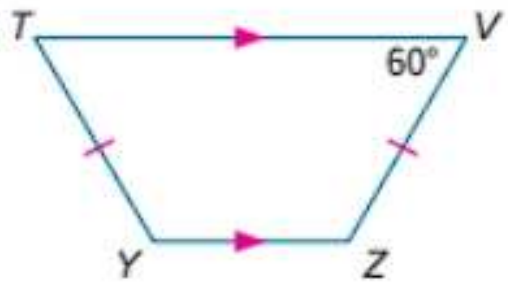


CHAPTER 2
QUADRILATERALS

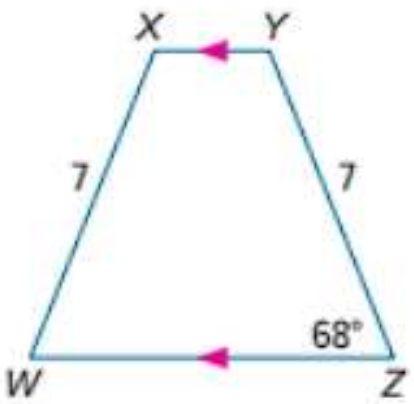
2.6 – Trapezoids and kites

Find each measure.

2. $m\angle T$



3. $m\angle Y$



CHAPTER 2
QUADRILATERALS

2.6 – Trapezoids and kites

Example 2

4. *RSTU* is a quadrilateral with vertices $R(-3, -3)$, $S(5, 1)$, $T(10, -2)$, and $U(-4, -9)$.

a. Verify that *RSTU* is a trapezoid.

b. Is *RSTU* an isosceles trapezoid? Explain.

5. *ABCD* is a quadrilateral with vertices $A(-1, 5)$, $B(3, 2)$, $C(-8, 2)$, and $D(-4, 5)$.

a. Verify that *ABCD* is a trapezoid.

b. Is *ABCD* an isosceles trapezoid? Explain.

CHAPTER 2
QUADRILATERALS

2.6 – Trapezoids and kites

Examples 3 and 4

$\overline{TS}$ is the midsegment of trapezoid *HJKL*.

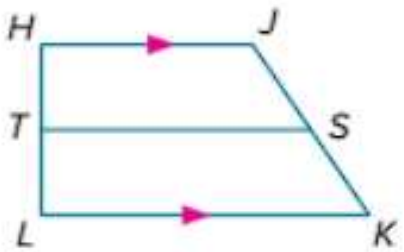
6. If $HJ = 14$ and $LK = 42$, find TS.

7. If $LK = 19$ and $TS = 15$, find HJ.

8. If $HJ = 7$ and $TS = 10$, find LK.

9. If $KL = 17$ and $JH = 9$, find ST.

10. If $TS = 24$ and $LK = 27.4$, find HJ.

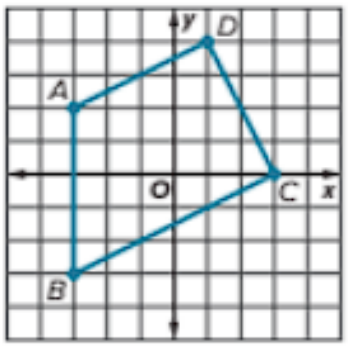


CHAPTER 2
QUADRILATERALS

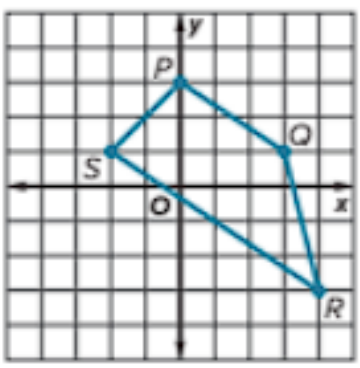
2.6 – Trapezoids and kites

Example 5

11. In trapezoid $ABCD$, $\overline{AD} \parallel \overline{BC}$. Find the endpoints of the midsegment.



12. In trapezoid $PQRS$, $\overline{PQ} \parallel \overline{SR}$. Find the endpoints of the midsegment.



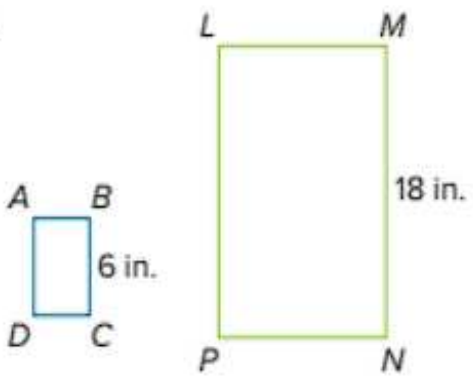
CHAPTER 3
SIMILARITY

3.1 – DIALATION

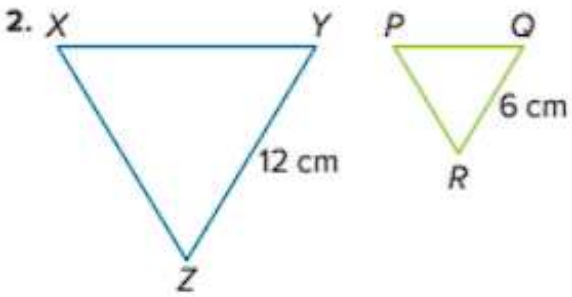
- **Determine whether the dilation from the figure on the left to the figure on the right is an ENLARGMENT OR REDUCTION. Then find the scale factor of the dilation**

WRITING

1.



2.



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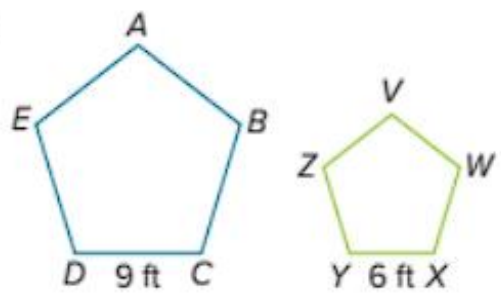

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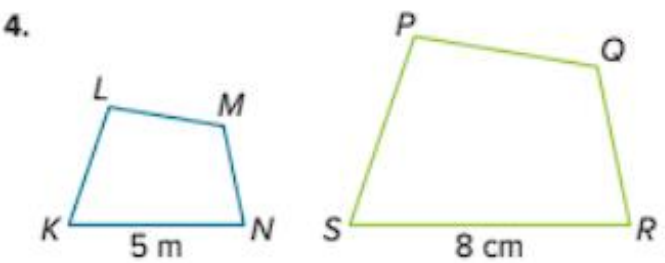


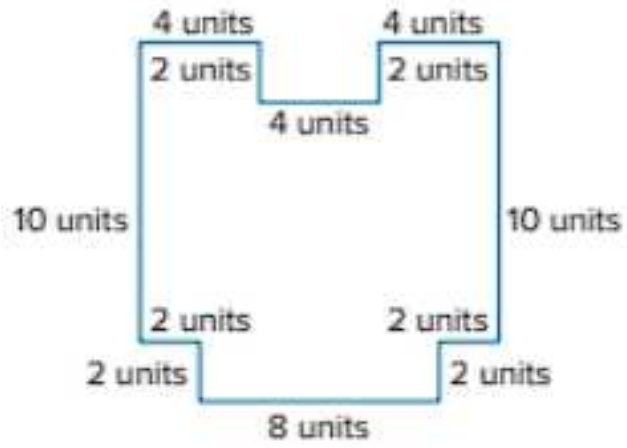
CHAPTER 3
SIMILARITY

3.1 – DIALATION

WRITING

Example 2

5. BLUEPRINTS Ezra is redrawing the blueprint shown of a stage he is planning to build for his band. By what percentage should he multiply the dimensions of the stage so that the dimensions of the image are $\frac{1}{2}$ the size of the original blueprint? What will be the perimeter of the updated blueprint?



CHAPTER 3
SIMILARITY

3.1 – DIALATION

- **For each set of triangles vertices, find and graph the coordinates of the vertices of the image after dilation of the triangle by the given scale factor**

WRITING

6. $J(-8, 0), K(-4, 4), L(-2, 0), k = 0.5$

7. $S(0, 0), T(-4, 0), V(-8, -8), k = 1.25$

8. $A(9, 9), B(3, 3), C(6, 0), k = \frac{1}{3}$

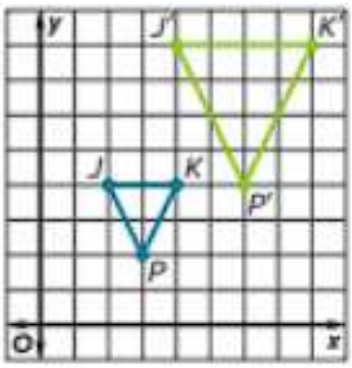
CHAPTER 3
SIMILARITY

3.1 – DIALATION

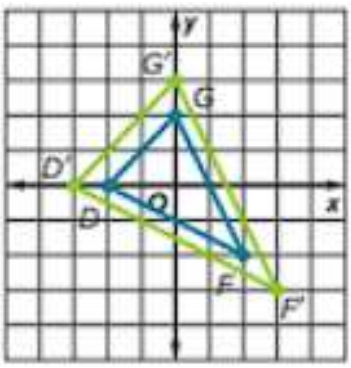
- **Find the scale factor of the dilation**

WRITING

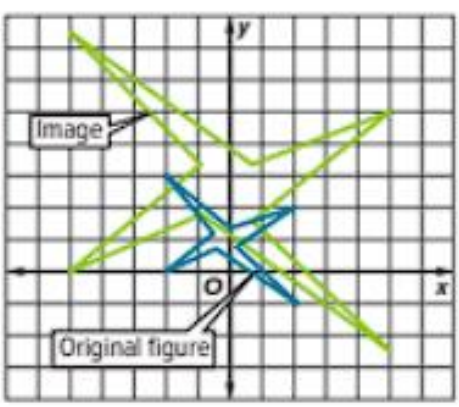
10. $\triangle J'K'P'$ is the image of $\triangle JKP$.



11. $\triangle D'F'G'$ is the image of $\triangle DFG$.



12. Tyrone drew a logo and a dilation of the same logo on the coordinate plane. What is the scale factor of the dilation?

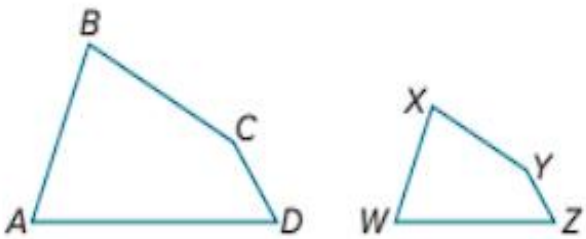


CHAPTER 3
SIMILARITY

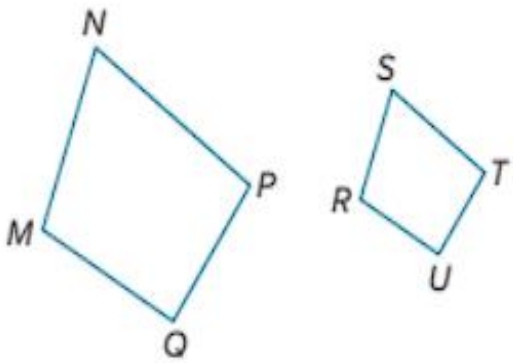
3.2 – SIMILAR POLYGONS

- **List all pairs of congruent, and write a proportion that relates the corresponding sides for each pair of similar polygons**

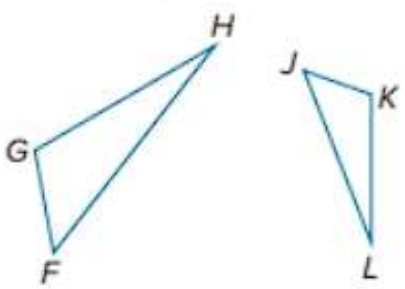
1. $ABCD \sim WXYZ$



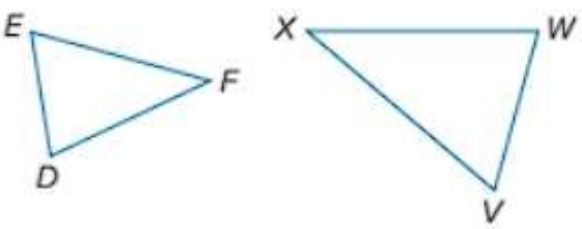
2. $MNPQ \sim RSTU$



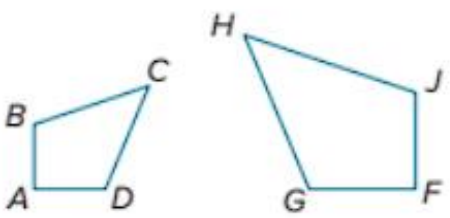
3. $\triangle FGH \sim \triangle JKL$



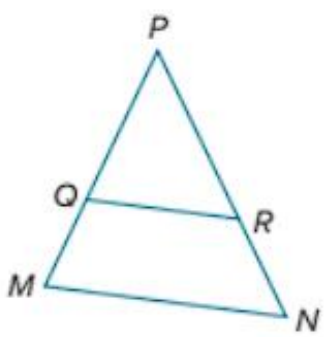
4. $\triangle DEF \sim \triangle VWX$



5. $ABCD \sim FGHJ$



6. $\triangle MNP \sim \triangle QRP$

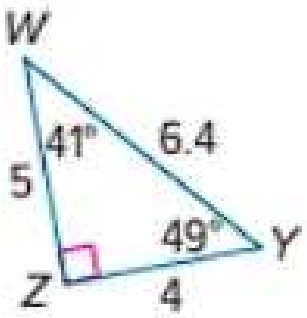


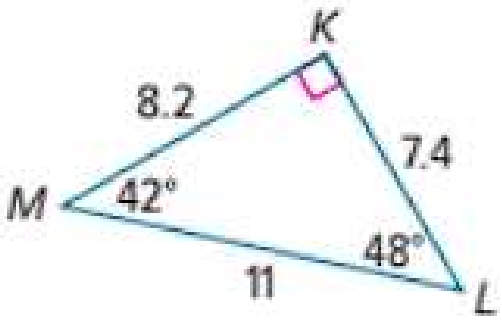
CHAPTER 3
SIMILARITY

3.2 – SIMILAR POLYGONS

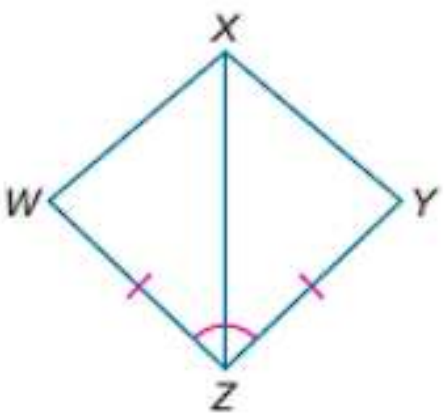
- **Determine whether each pair of figures is similar. If so, find the scale. Explain your reasoning.**

7.





8.

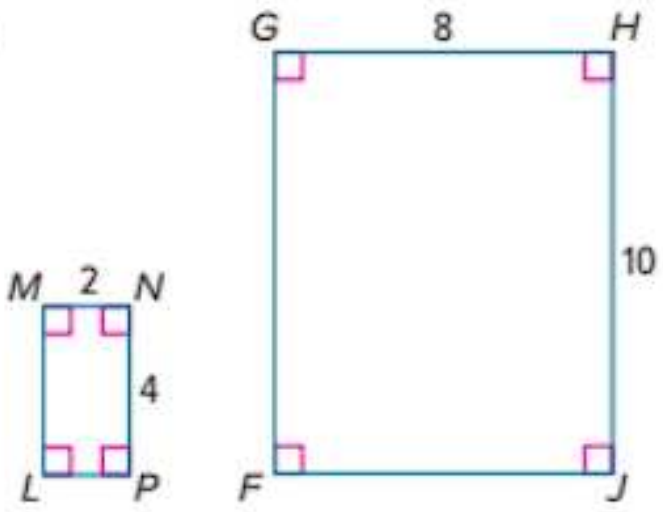


CHAPTER 3
SIMILARITY

3.2 – SIMILAR POLYGONS

- **Determine whether each pair of figures is similar. If so, find the scale. Explain your reasoning.**

9.



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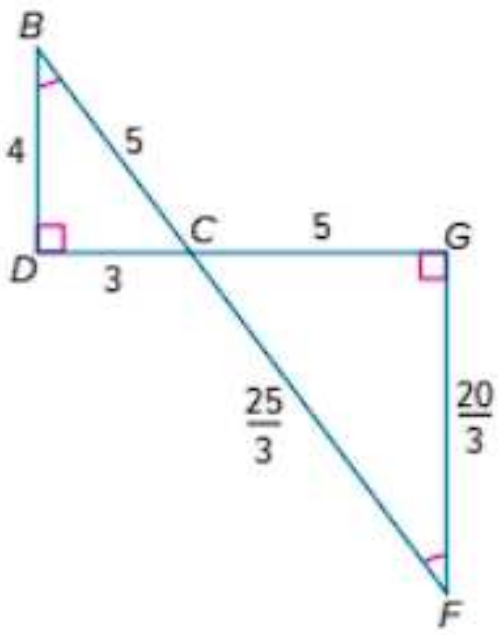


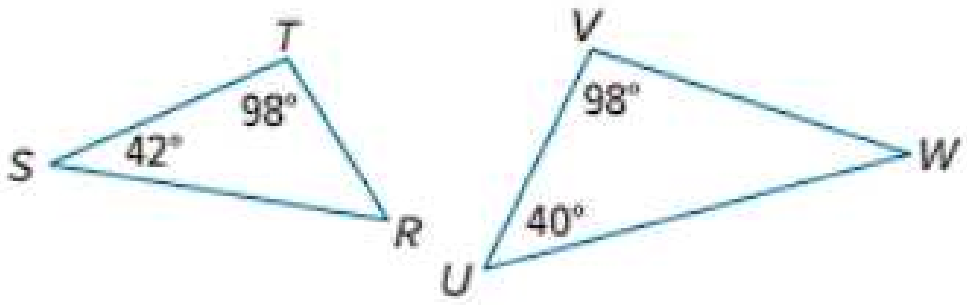
CHAPTER 3
SIMILARITY

3.3 – SIMILAR TRIANGLE : AA SIMILARITY

- **Determine whether each pair of triangles is similar. Explain your reasoning**

1.

2.

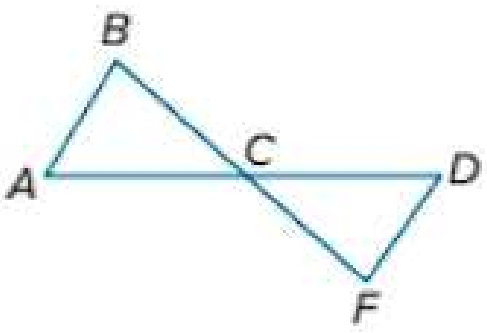


CHAPTER 3
SIMILARITY

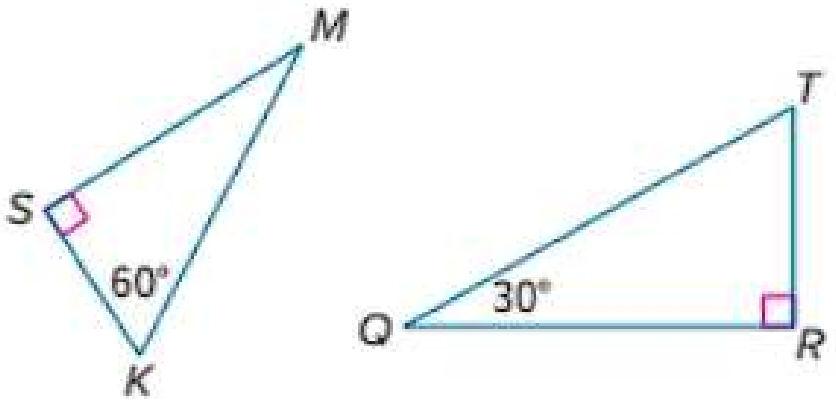
3.3 – SIMILAR TRIANGLE : AA SIMILARITY

- **Determine whether each pair of triangles is similar. Explain your reasoning**

3.



4.

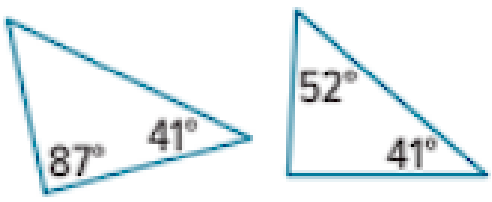


CHAPTER 3
SIMILARITY

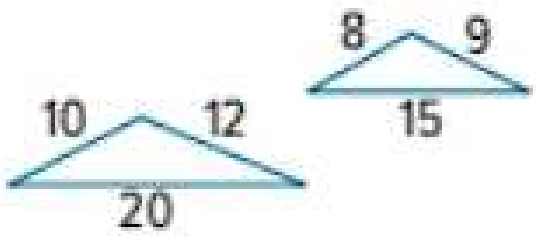
3.3 – SIMILAR TRIANGLE : AA SIMILARITY

- **Determine whether each pair of triangles is similar. Explain your reasoning**

5.



6.



CHAPTER 3
SIMILARITY

3.3 – SIMILAR TRIANGLE : AA SIMILARITY

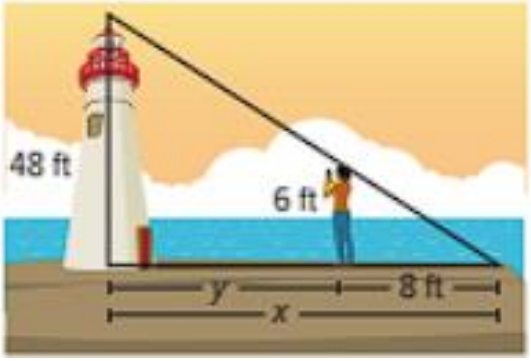
Example 2

7. CELL TOWERS A cell phone tower casts a shadow that is 100 feet long. At the same time, Lia stands near the tower and casts a shadow that is 3 feet 4 inches long. If Lia is 4 feet 6 inches tall, how tall is the cell phone tower?

8. LIGHTHOUSE Maya wants to know how far she is standing from a lighthouse. The end of Maya's shadow coincides with the end of the lighthouse's shadow.

a. What is the distance from the lighthouse to the end of the lighthouse's shadow, x?

b. What is the distance from Maya to the lighthouse, y?

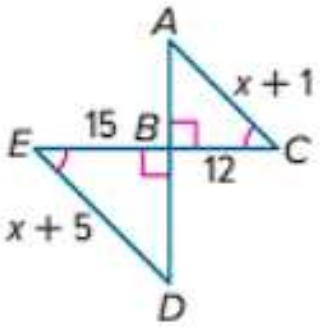


CHAPTER 3
SIMILARITY

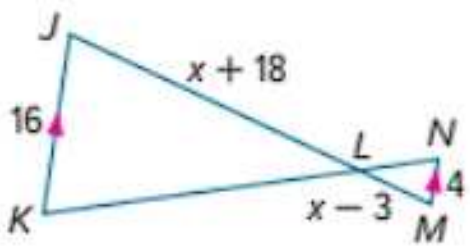
3.3 – SIMILAR TRIANGLE : AA SIMILARITY

Identify the similar triangles. Then find each measure.

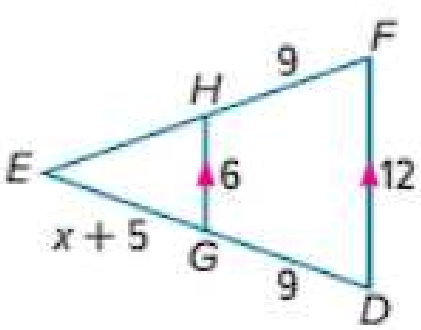
9. *AC*



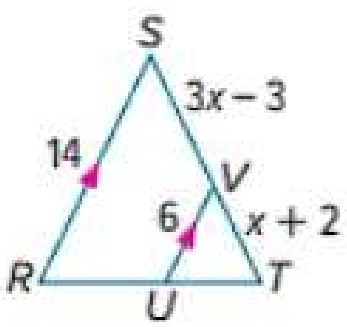
10. *JL*



11. *EH*



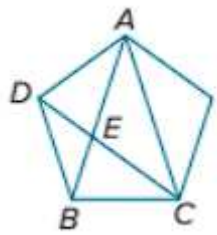
12. *VT*



CHAPTER 3
SIMILARITY

3.3 – SIMILAR TRIANGLE : AA SIMILARITY

13. Olivia draws a regular pentagon and starts connecting its vertices to make a 5-pointed star. After drawing three of the lines in the star, she becomes curious about two triangles that appear in the figure, $\triangle ABC$ and $\triangle CEB$. They look similar to her. Prove that this is the case.



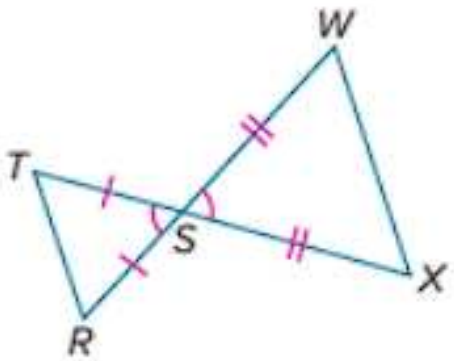
CHAPTER 3
SIMILARITY

3.4 – SIMILAR TRIANGLE : SSS AND SAS SIMILARITY

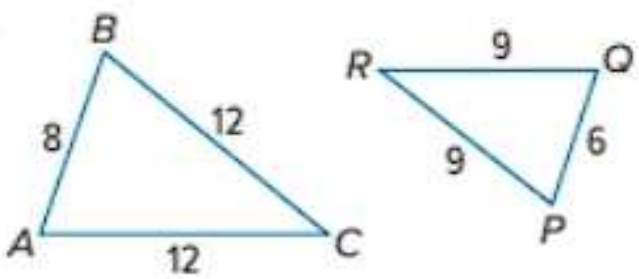
Example 1

Determine whether each pair of triangles is similar. Explain your reasoning.

1.



2.



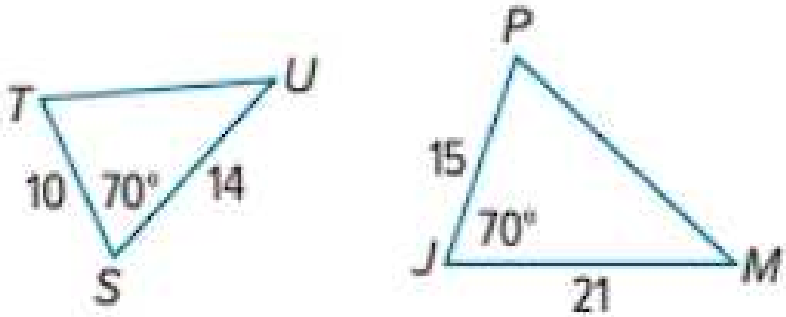
CHAPTER 3
SIMILARITY

3.4 – SIMILAR TRIANGLE : SSS AND SAS SIMILARITY

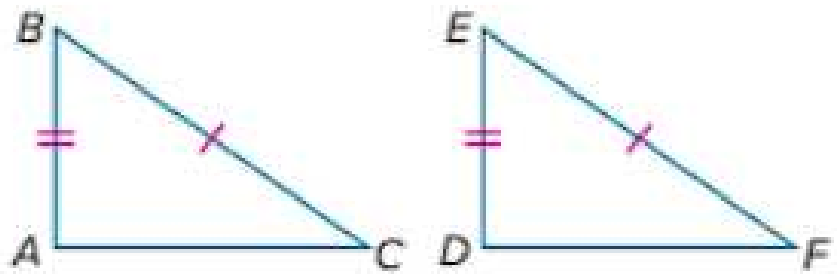
Example 1

Determine whether each pair of triangles is similar. Explain your reasoning.

3.



4.



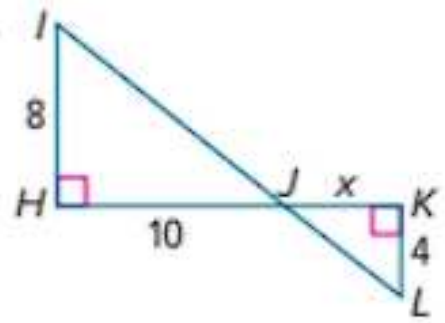
CHAPTER 3
SIMILARITY

3.4 – SIMILAR TRIANGLE : SSS AND SAS SIMILARITY

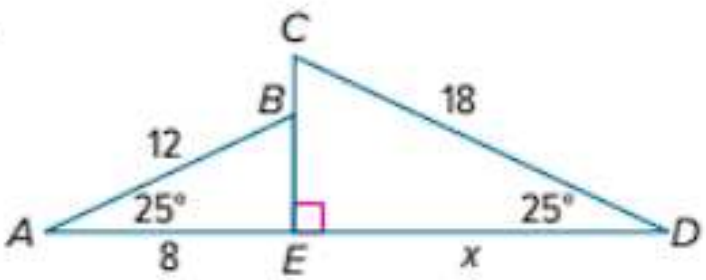
Example 2

Identify the similar triangles. Then find the value of *x*.

5.



6.



CHAPTER 3
SIMILARITY

3.4 – SIMILAR TRIANGLE : SSS AND SAS SIMILARITY

Example 2

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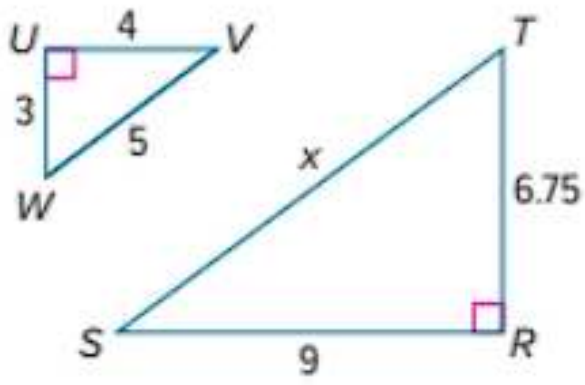
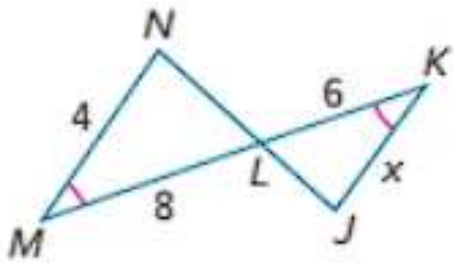
7.



8.

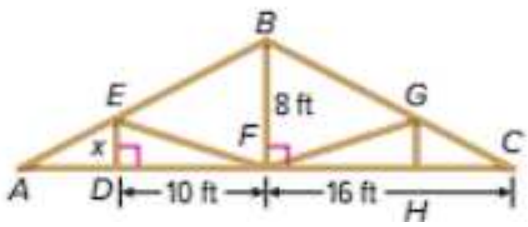


CHAPTER 3
SIMILARITY

3.4 – SIMILAR TRIANGLE : SSS AND SAS SIMILARITY

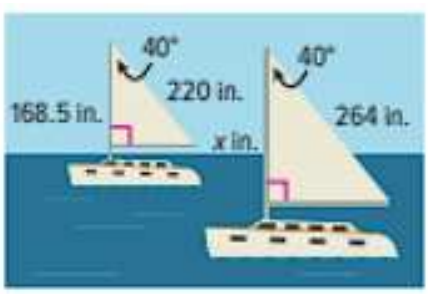
Example 3

9. ROOFING The skeleton of a roof is shown. Find the value of x such that triangles DEF and FBC in the outline of the roof are similar.



10. RADIO A radio tower casts an 8-foot-long shadow at the same time that a vertical yardstick casts a shadow one half inch long. If the triangles formed by the objects and their shadows are similar, how tall is the radio tower?

11. SAILING The two sailboats shown are participating in a regatta. If the sails are similar, what is the value of x?

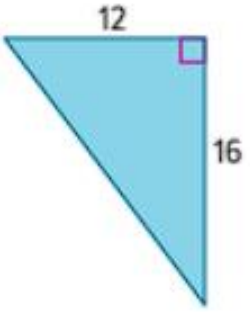


CHAPTER 4
RIGHT TRIANGLES AND TRIGONOMETRY

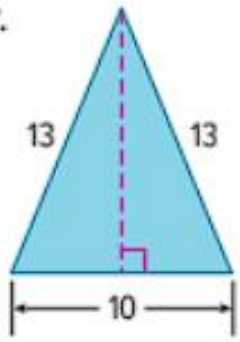
4.2 – PYTHAGOREAN THEOREM AND ITS CONVERSE

Find the perimeter and area of each figure.

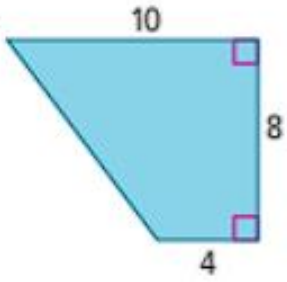
26.



27.



28.



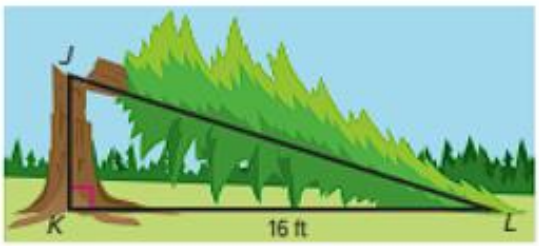
29. The sides of a triangle have measures of x, $x + 5$, and 25. If the measure of the longest side is 25, what value of x makes the triangle a right triangle?

30. PRECISION The sides of a triangle have measures of $2x$, 8, and 12. If the measure of the longest side is $2x$, what values of x make the triangle acute?

CHAPTER 4
RIGHT TRIANGLES AND TRIGONOMETRY

4.2 – PYTHAGOREAN THEOREM AND ITS CONVERSE

31. **REASONING** A redwood tree in a national park is 20 meters tall. After it is struck by lightning, the tree breaks and falls over, as shown in the figure. The top of the tree lands at a point 16 feet from the centerline of the tree. A park ranger wants to know the height of the remaining stump of the tree.



a. The ranger lets x represent the height of the stump, $\overline{JK}$. Explain how the ranger can write an expression for the length of $\overline{JL}$. Then write an equation that can be used to solve the problem.

b. Show how to solve the equation from part **a** to find the height of the stump.

32. **CONSTRUCT ARGUMENTS** Valeria and Sanjia are staking out a garden that has one pair of opposite sides measuring 30 feet and the other pair of sides measuring 40 feet. Using only a 60-foot-long tape measure, how can they be sure that their garden is a rectangle?

a. Draw a model of the garden with diagonal t. Let $p = 30$ and $q = 40$.

b. If the garden is a rectangle, what must be true about p, q, and t? Why?

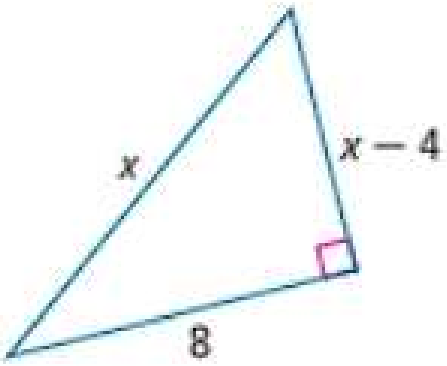
c. Sanjia measures the diagonal and finds that it is 50 feet long. Is there enough information to determine whether their garden is a rectangle? Explain.

CHAPTER 4
RIGHT TRIANGLES AND TRIGONOMETRY

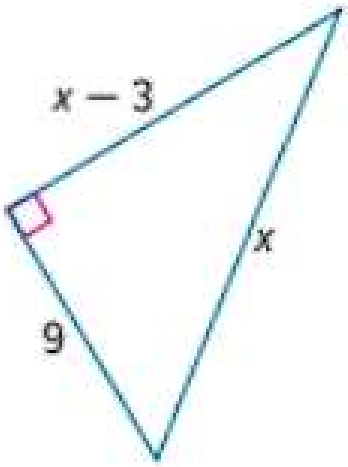
4.2 – PYTHAGOREAN THEOREM AND ITS CONVERSE

Find the value of x.

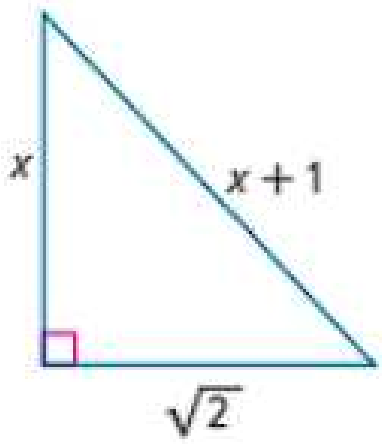
33.



34.



35.



CHAPTER 4
RIGHT TRIANGLES AND TRIGONOMETRY

4.2 – PYTHAGOREAN THEOREM AND ITS CONVERSE

WRITING

Example 4

Determine whether the points *X*, *Y*, and *Z* can be the vertices of a triangle. If so, classify the triangle as *acute*, *right*, or *obtuse*. Justify your answer.

15. $X(-3, -2), Y(-1, 0), Z(0, -1)$

16. $X(-7, -3), Y(-2, -5), Z(-4, -1)$

17. $X(1, 2), Y(4, 6), Z(6, 6)$

18. $X(3, 1), Y(3, 7), Z(11, 1)$

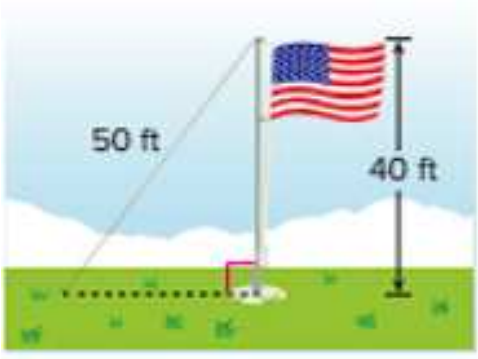
CHAPTER 4
RIGHT TRIANGLES AND TRIGONOMETRY

4.2 – PYTHAGOREAN THEOREM AND ITS CONVERSE

WRITING

Mixed Exercises

19. TETHERS To help support a flag pole, a 50-foot-long tether is tied to the pole at a point 40 feet above the ground. The tether is pulled taut and tied to an anchor in the ground. How far away from the base of the pole is the anchor?



Determine whether each set of measures can be the measures of the sides of a triangle. If so, classify the triangle as *acute*, *obtuse*, or *right*. Justify your answer.

20. $\sqrt{5}, \sqrt{12}, \sqrt{13}$ **21.** $2, \sqrt{8}, \sqrt{12}$ **22.** $9, 40, 41$

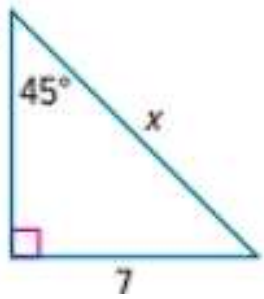
CHAPTER 4
RIGHT TRIANGLES AND TRIGONOMETRY

4.4 – SPECIAL RIGHT TRIANGLES

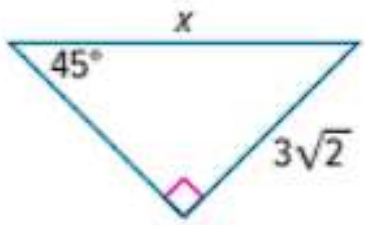
Example 1

REGULARITY **Find the value of *x*.**

1.

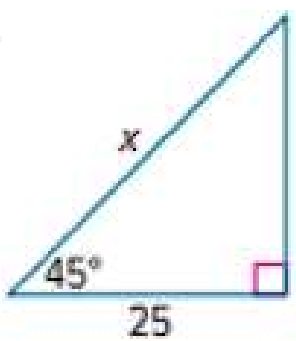


2.

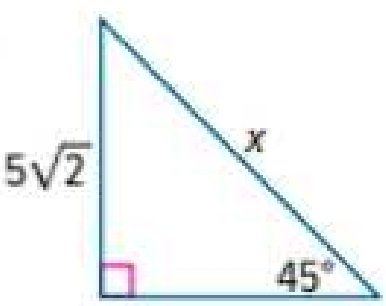


3.

4.



5.



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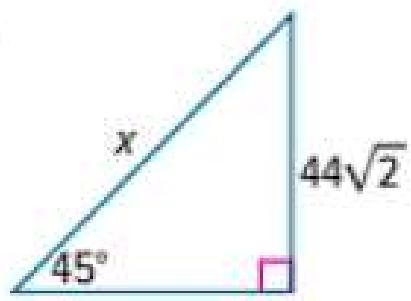


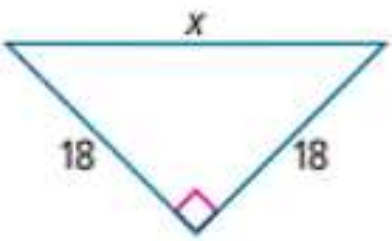
CHAPTER 4
RIGHT TRIANGLES AND TRIGONOMETRY

4.4 – SPECIAL RIGHT TRIANGLES

Example 2

Find the value of *x*.

7.



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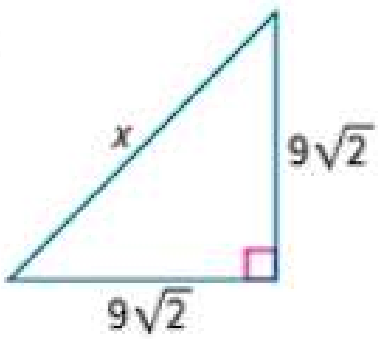

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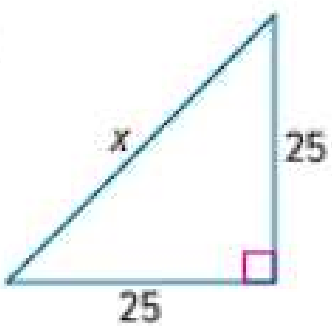

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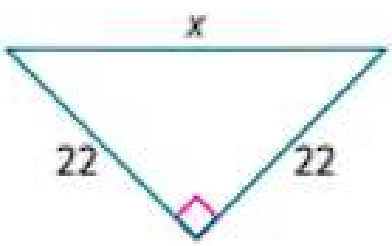

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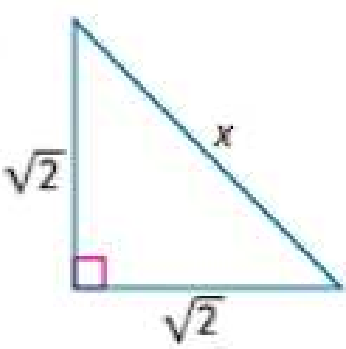

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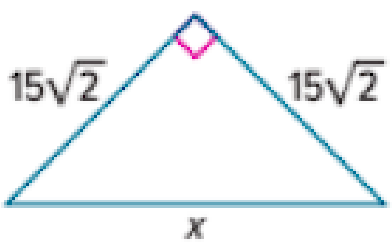

CHAPTER 4
RIGHT TRIANGLES AND TRIGONOMETRY

4.4 – SPECIAL RIGHT TRIANGLES

Example 3

Find the value of *x*.

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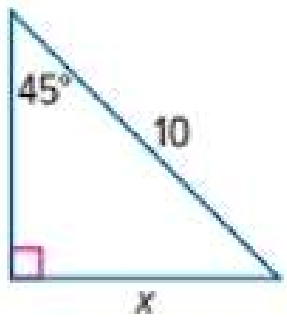

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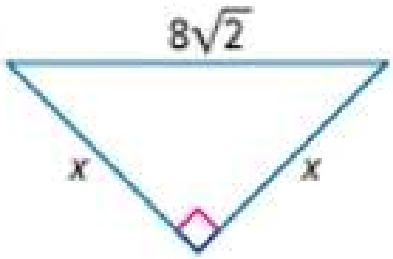

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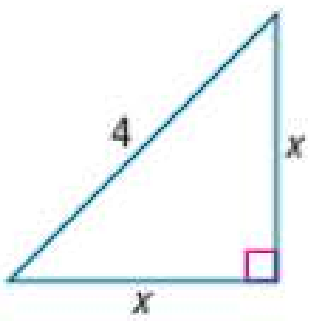

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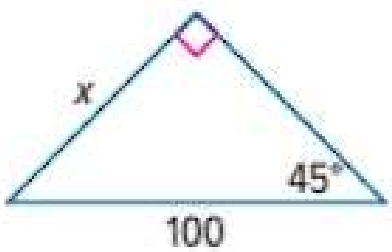

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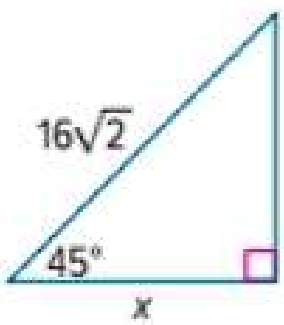

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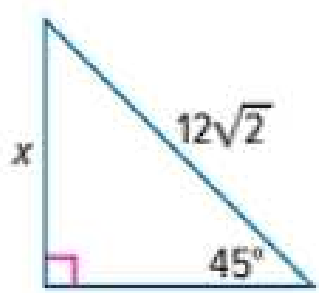

CHAPTER 4
RIGHT TRIANGLES AND TRIGONOMETRY

4.4 – SPECIAL RIGHT TRIANGLES

Find the values of x and y.

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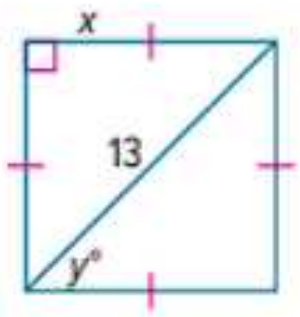

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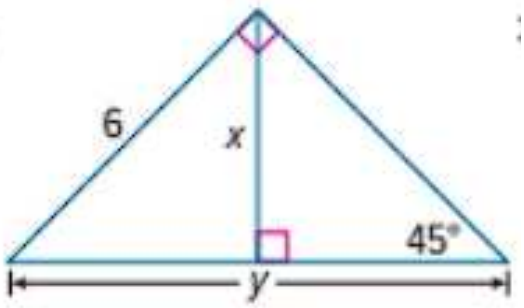

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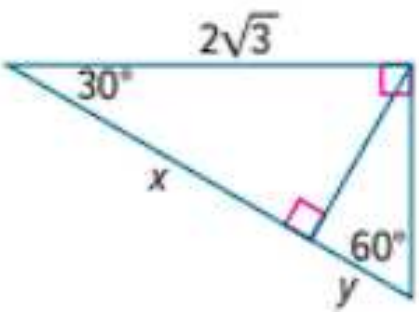

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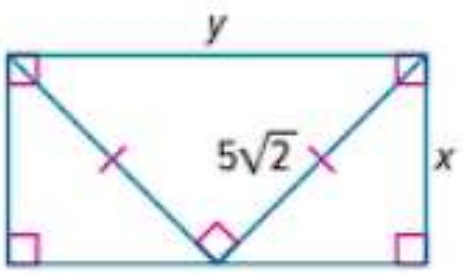

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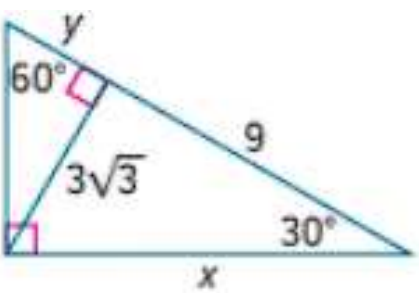

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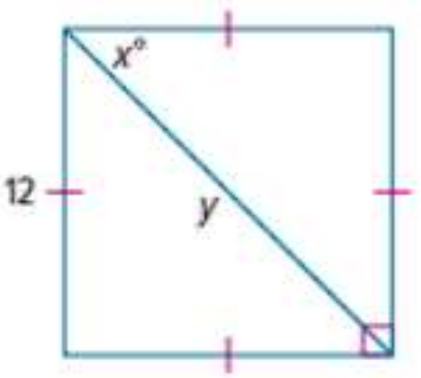


CHAPTER 11
POLYNOMIALS

11.1 – ADDING AND SUBTRACTING POLYNOMIALS

Example 1

Determine whether each expression is a polynomial. If it is a polynomial, find the degree and determine whether it is a *monomial*, *binomial*, or *trinomial*.

1. $\frac{5y^3}{x^2} + 4x$

2. 21

3. $c^4 - 2c^2 + 1$

4. $d + 3d^{\frac{1}{2}}$

5. $a - a^2$

6. $5n^3 + nq^3$

CHAPTER 11
POLYNOMIALS

11.1 – ADDING AND SUBTRACTING POLYNOMIALS

Example 2

Write each polynomial in standard form. Identify the leading coefficient.

7. $5x^2 - 2 + 3x$

8. $8y + 7y^3$

9. $4 - 3c - 5c^2$

10. $-y^3 + 3y - 3y^2 + 2$

11. $11t + 2t^2 - 3 + t^5$

12. $2 + r - r^3$

13. $\frac{1}{2}x - 3x^4 + 7$

14. $-9b^2 + 10b - b^6$

CHAPTER 11
POLYNOMIALS

11.1 – ADDING AND SUBTRACTING POLYNOMIALS

Examples 3–5

Find each sum or difference.

15. $(2x + 3y) + (4x + 9y)$

16. $(6s + 5t) + (4t + 8s)$

17. $(5a + 9b) - (2a + 4b)$

18. $(11m - 7n) - (2m + 6n)$

19. $(m^2 - m) + (2m + m^2)$

20. $(x^2 - 3x) - (2x^2 + 5x)$

CHAPTER 11
POLYNOMIALS

11.1 – ADDING AND SUBTRACTING POLYNOMIALS

Examples 3–5

Find each sum or difference.

21. $(d^2 - d + 5) - (2d + 5)$

22. $(2h^2 - 5h) + (7h - 3h^2)$

23. $(5f + g - 2) + (-2f + 3)$

24. $(6k^2 + 2k + 9) + (4k^2 - 5k)$

25. $(2c^2 + 6c + 4) + (5c^2 - 7)$

26. $(2x + 3x^2) - (7 - 8x^2)$

CHAPTER 11
POLYNOMIALS

11.2 – MULTIPLYING POLYNOMIALS BY MONOMIALS

WRITING

Example 1

Simplify each expression.

1. $b(b^2 - 12b + 1)$

2. $f(f^2 + 2f + 25)$

3. $-3m^3(2m^3 - 12m^2 + 2m + 25)$

4. $2j^2(5j^3 - 15j^2 + 2j + 2)$

5. $2pr^2(2pr + 5p^2r - 15p)$

6. $4t^3u(2t^2u^2 - 10tu^4 + 2)$

CHAPTER 11
POLYNOMIALS

11.2 – MULTIPLYING POLYNOMIALS BY MONOMIALS

WRITING

Example 2

Simplify each expression.

7. $-3(5x^2 + 2x + 9) + x(2x - 3)$

8. $a(-8a^2 + 2a + 4) + 3(6a^2 - 4)$

9. $-4d(5d^2 - 12) + 7(d + 5)$

10. $-9g(-2g + g^2) + 3(g^3 + 4)$

11. $2j(7j^2k^2 + jk^2 + 5k) - 9k(-2j^2k^2 + 2k^2 + 3j)$

12. $4n(2n^3p^2 - 3np^2 + 5n) + 4p(6n^2p - 2np^2 + 3p)$

CHAPTER 11
POLYNOMIALS

11.2 – MULTIPLYING POLYNOMIALS BY MONOMIALS

WRITING

Example 3

13. NUMBER THEORY The sum of the first n whole numbers is given by the expression $\frac{1}{2}(n^2 + n)$. Expand the equation by multiplying, then find the sum of the first 12 whole numbers.

14. COLLEGE Troy's grandfather gave him \$700 to start his college savings account. Troy's grandfather also gives him \$40 each month to add to the account. Troy's mother gives him \$50 each month, but has been doing so for 4 fewer months than Troy's grandfather. Write a simplified expression for the amount of money Troy has received from his grandfather and mother after m months.

15. MARKET Sophia went to the farmers' market to purchase some vegetables. She bought peppers and potatoes. The peppers were \$0.39 each and the potatoes were \$0.29 each. She spent \$3.88 on vegetables, and bought 4 more potatoes than peppers. If x = the number of peppers, write and solve an equation to find out how many of each vegetable Sophia bought.

CHAPTER 11
POLYNOMIALS

11.2 – MULTIPLYING POLYNOMIALS BY MONOMIALS

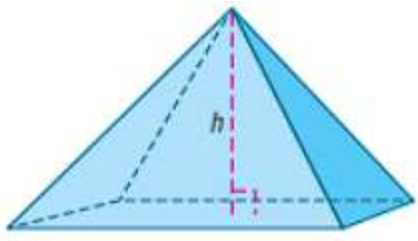
WRITING

15. MARKET Sophia went to the farmers' market to purchase some vegetables. She bought peppers and potatoes. The peppers were \$0.39 each and the potatoes were \$0.29 each. She spent \$3.88 on vegetables, and bought 4 more potatoes than peppers. If x = the number of peppers, write and solve an equation to find out how many of each vegetable Sophia bought.

16. GEOMETRY The volume of a pyramid can be found by multiplying the area of its base B by one-third of its height. The area of the rectangular base of a pyramid is given by the polynomial equation $B = x^2 - 4x - 12$.

a. Write a polynomial equation to represent the volume of the pyramid V if its height is 10 meters.

b. Find the volume of the pyramid if $x = 12$ m.



CHAPTER 11
POLYNOMIALS

11.2 – MULTIPLYING POLYNOMIALS BY MONOMIALS

WRITING

Example 4

Solve each equation.

17. $7(t^2 + 5t - 9) + t = t(7t - 2) + 13$

18. $w(4w + 6) + 2w = 2(2w^2 + 7w - 3)$

19. $5(4z + 6) - 2(z - 4) = 7z(z + 4) - z(7z - 2) - 48$

CHAPTER 11
POLYNOMIALS

11.2 – MULTIPLYING POLYNOMIALS BY MONOMIALS

WRITING

Example 4

Solve each equation.

20. $9c(c - 11) + 10(5c - 3) = 3c(c + 5) + c(6c - 3) - 30$

21. $2f(5f - 2) - 10(f^2 - 3f + 6) = -8f(f + 4) + 4(2f^2 - 7f)$

22. $2k(-3k + 4) + 6(k^2 + 10) = k(4k + 8) - 2k(2k + 5)$

CHAPTER 11
POLYNOMIALS

11.3 – MULTIPLYING POLYNOMIALS

Examples 1–3

Find each product.

1. $(3c - 5)(c + 3)$

2. $(g + 10)(2g - 5)$

3. $(6a + 5)(5a + 3)$

4. $(4x + 1)(6x + 3)$

5. $(5y - 4)(3y - 1)$

6. $(6d - 5)(4d - 7)$

11. $(8w + 4x)(5w - 6x)$

12. $(11z - 5y)(3z + 2y)$

CHAPTER 11
POLYNOMIALS

11.3 – MULTIPLYING POLYNOMIALS

Example 4

13. PLAYGROUND The dimensions of a playground are represented by a width of $9x + 1$ feet and a length of $5x - 2$ feet. Write an expression that represents the area of the playground.

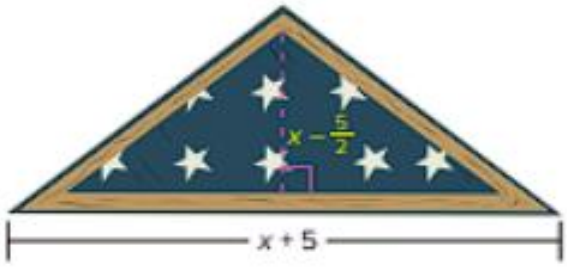
14. THEATER The Loft Theater has a center seating section with $3c + 8$ rows and $4c - 1$ seats in each row. Write an expression for the total number of seats in the center section.

15. CRAFTS Suppose a rectangular quilt made up of squares has a length-to-width ratio of 5 to 4. The length of the quilt is $5x$ inches. The quilt can be made slightly larger by adding a border of 1-inch squares all the way around the perimeter of the quilt. Write a polynomial expression for the area of the larger quilt.

CHAPTER 11
POLYNOMIALS

11.3 – MULTIPLYING POLYNOMIALS

16. FLAG CASE A United States flag is sometimes folded into a triangle shape and displayed in a triangular display case. If a display case has dimensions shown in inches, write a polynomial expression that represents the area of wall space covered by the display case.



17. NUMBER THEORY Think of a whole number. Subtract 2. Write down this number. Take the original number and add 2. Write down this number. Find the product of the numbers you wrote down. Subtract the square of the original number. The result is always −4. Use polynomials to show how this number trick works.

CHAPTER 11
POLYNOMIALS

11.3 – MULTIPLYING POLYNOMIALS

Example 5

Find each product.

18. $(2y - 11)(y^2 - 3y + 2)$

19. $(4a + 7)(9a^2 + 2a - 7)$

20. $(m^2 - 5m + 4)(m^2 + 7m - 3)$

21. $(x^2 + 5x - 1)(5x^2 - 6x + 1)$

22. $(3b^3 - 4b - 7)(2b^2 - b - 9)$

23. $(6z^2 - 5z - 2)(3z^3 - 2z - 4)$

CHAPTER 11
POLYNOMIALS

11.4 – SPECIAL PRODUCTS

Examples 1 and 3

Find each product.

1. $(a + 10)(a + 10)$

2. $(b - 6)(b - 6)$

3. $(h + 7)^2$

4. $(x + 6)^2$

5. $(8 - m)^2$

6. $(9 - 2y)^2$

CHAPTER 11
POLYNOMIALS

11.4 – SPECIAL PRODUCTS

Examples 1 and 3

Find each product.

7. $(2b + 3)^2$

8. $(5t - 2)^2$

9. $(8h - 4n)^2$

10. $(4m - 5n)^2$

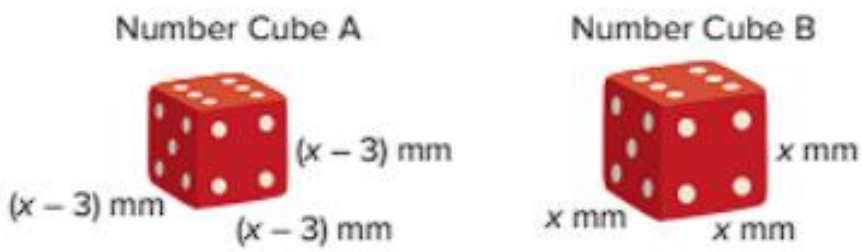
CHAPTER 11
POLYNOMIALS

11.4 – SPECIAL PRODUCTS

Example 2

11. ROUNDABOUTS A city planner is proposing a roundabout to improve traffic flow at a busy intersection. Write a polynomial equation for the area A of the traffic circle if the radius of the outer circle is r and the width of the road is 18 feet.

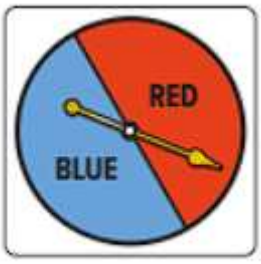
12. NUMBER CUBES Kivon has two number cubes. Each edge of number cube A is 3 millimeters less than each edge of number cube B. Each edge of number cube B is x millimeters. Write an equation that models the surface area of number cube A.



CHAPTER 11
POLYNOMIALS

11.4 – SPECIAL PRODUCTS

13. PROBABILITY The spinner has two equal sections, blue (B) and red (R). Use the square of a sum to determine the possible combinations of spinning the spinner two times.



14. BUSINESS The Combo Lock Company finds that its profit data from 2015 to the present can be modeled by the function $y = (2n + 11)^2$, where y is the profit n years since 2015. Which special product does this polynomial demonstrate? Simplify the polynomial.

CHAPTER 11
POLYNOMIALS

11.5 – USING THE DISTRIBUTIVE PROPERTY

Examples 3 and 4

Factor each polynomial.

11. $fg - 5g + 4f - 20$

12. $a^2 - 4a - 24 + 6a$

13. $hj - 2h + 5j - 10$

14. $xy - 2x - 2 + y$

15. $45pq - 27q - 50p + 30$

16. $24ty - 18t + 4y - 3$

17. $3dt - 21d + 35 - 5t$

18. $8r^2 + 12r$

CHAPTER 11
POLYNOMIALS

11.5 – USING THE DISTRIBUTIVE PROPERTY

Examples 3 and 4

Factor each polynomial.

19. $21th - 3t - 35h + 5$

20. $vp + 12v + 8p + 96$

21. $5br - 25b + 2r - 10$

22. $2nu - 8u + 3n - 12$

23. $b^2 - 2b + 3b - 6$

24. $2j^2 + 2j + 3j + 3$

CHAPTER 11
POLYNOMIALS

11.7 – FACTORING QUADRATIC TRINOMIALS

Examples 1–4

Factor each polynomial, if possible. If the polynomial cannot be factored using integers, write *prime*.

1. $x^2 + 17x + 42$

2. $y^2 - 17y + 72$

3. $a^2 + 8a - 48$

4. $n^2 - 2n - 35$

5. $44 + 15h + h^2$

6. $40 - 22x + x^2$

7. $-24 - 5x + x^2$

8. $-42 - m + m^2$

CHAPTER 11
POLYNOMIALS

11.7 – FACTORING QUADRATIC TRINOMIALS

Examples 1–4

Factor each polynomial, if possible. If the polynomial cannot be factored using integers, write *prime*.

9. $t^2 + 8t + 12$

10. $d^2 + 5d - 13$

11. $y^2 - 6y + 17$

12. $n^2 + 7n + 12$

13. $b^2 - 12b - 101$

14. $p^2 + 9p + 20$

15. $h^2 + 9h + 18$

16. $c^2 + c + 21$

CHAPTER 11
POLYNOMIALS

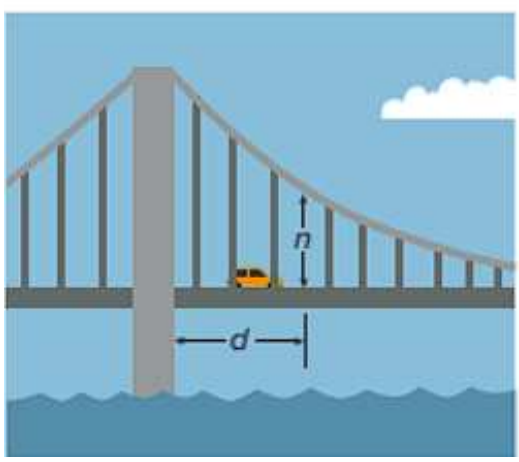
11.7 – FACTORING QUADRATIC TRINOMIALS

Example 5

17. COSMETICS CASE The top of a cosmetics case is a rectangle in which the width is 2 centimeters greater than the length. The expression $x^2 + 26x - 168$ represents the area of the top of the case. Factor the expression.

18. CARPENTRY Miko wants to build a crate to hold record albums. The expression $2x^2 - 6x - 80$ represents the volume of the crate. Factor the expression.

19. BRIDGE ENGINEERING A suspension bridge is a bridge in which the deck is supported by cables with towers spaced throughout the span of the bridge. The height of a cable n inches above the deck measured at distance d in yards from the first tower is given by $d^2 - 36d + 324$. Factor the expression.



CHAPTER 11
POLYNOMIALS

11.7 – FACTORING QUADRATIC TRINOMIALS

Examples 6 and 7

Factor each polynomial, if possible. If the polynomial cannot be factored using integers, write *prime*.

21. $5x^2 + 34x + 24$

22. $2x^2 + 19x + 24$

23. $4x^2 + 22x + 10$

24. $4x^2 + 38x + 70$

25. $2x^2 - 3x - 9$

26. $4x^2 - 13x + 10$

27. $2x^2 + 3x + 6$

28. $5x^2 + 3x + 4$

CHAPTER 11
POLYNOMIALS

11.7 – FACTORING QUADRATIC TRINOMIALS

Examples 6 and 7

Factor each polynomial, if possible. If the polynomial cannot be factored using integers, write *prime*.

29. $12x^2 + 69x + 45$

30. $4x^2 - 5x + 7$

31. $3x^2 - 8x + 15$

32. $5x^2 + 23x + 24$

33. $2x^2 + 3x - 6$

34. $2t^2 + 9t - 5$

35. $2y^2 + y - 1$

36. $4h^2 + 8h - 5$