أوراق عمل شاملة وفق الهيكل الوزاري منهج ريفيل

موقع المناهج ⇦ المناهج الإماراتية ⇦ ⇦ ⇦ الفصل الأول ⇦ أوراق عمل ⇦ الملف

تاريخ إضافة الملف على موقع المناهج: 2024-11-03 11:44:03

المزيد من مادة :	ملفات ا كتب للمعلم ا كتب للطالب ا اختبارات الكترونية ا اختبارات ا حلول ا عروض بوربوينت ا أوراق عمل منهج انجليزي ا ملخصات وتقارير ا مذكرات وبنوك ا الامتحان النهائي ا للمدرس

المزيد من الملفات بحسب والمادة في الفصل الأول

Reveal

1

هيكل الاختبار

الجزء الالكتروني

11 Advanced

MATH 2024-2025

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الصفحة الرسمية

1

Ryan invested $5000 in an account that grows continuously at an annual rate of 2.5%. Write the function that represents the situation, where A is the value of Ryan's investment after t years.

$a)\ A = 5000e^{0.025t}$

$b)\ A = 5000e^{0.25t}$

$c)\ A = 500e^{0.025t}$

$d)\ A = 5000e^{25t}$

2

Ryan invested $5000 in an account that grows continuously at an annual rate of 2.5%. What will Ryan's investment will be worth after 7 years?

$a)\ 5863.23$

$b)\ 5000.23$

$c)\ 9556.23$

$d)\ 5956.23$

3

Jariah invested $6500 in a savings account that grows continuously at an annual rate of 3.25%. Write the function that represents the situation, where A is the value of Jariah's investment after t years.

$a)\ A = 6500e^{0.325t}$

$b)\ A = 6500e^{0.25t}$

$c)\ A = 6500e^{0.00325t}$

$d)\ A = 6500e^{0.0325t}$

4

Jariah invested $6500 in a savings account that grows continuously at an annual rate of 3.25%. What will Jariah's investment will be worth after 18 years?

$a)\ 11667.04$

$b)\ 5000.44$

$c)\ 11667.44$

$d)\ 5956.44$

5

Marcella invested $12,750 in a company. Her investment has been growing continuously at an annual rate of 5.5%. Write the function that represents the situation, where A is the value of Marcella's investment after t years.

$a)\ A = 12750e^{0.55t}$

$b)\ A = 12750e^{0.0055t}$

$c)\ A = 12750e^{0.055t}$

$d)\ A = 12750e^{5.05t}$

6

Marcella invested $12,750 in a company. Her investment has been growing continuously at an annual rate of 5.5%. What will Marcella's investment will be worth after 9 years?

$a)\ 20950.35$

$b)\ 30916.35$

$c)\ 20916.35$

$d)\ 20916.035$

In 2000, the world population was estimated to be 6.124 billion people. In 2005, it was 6.515 billion.

Write an exponential growth equation to represent the population y in billions t years after 2000.

$a)\ y = 6.124e^{0.01238t}$

$b)\ y = 6.124e^{0.001238t}$

$c)\ \ y = 6.124e^{0.1238t}$

$d)\ y = 6124e^{0.01238t}$

In 2000, the world population was estimated to be 6.124 billion people. In 2005, it was 6.515 billion.

Use the equation to predict the year in which the world population reached 7.5 billion people.

$a)$ **2015** $b)$ **2016**

$c)$ **2017** $d)$ **2018**

Jason wants to buy a new HD television, but he thinks that if he waits, the quality of HD televisions will improve. The television he wants to buy costs $2500 now, and based on pricing trends, Jason thinks that the price will increase by 4% each year. Write an exponential growth equation to represent the price y of a new HD television t years from now.

$a)\ y = 2500e^{0.0124t}$

$b)\ y = 2500e^{0.024t}$

$c)\ \ y = 2500e^{0.04t}$

$d)\ y = 2500e^{0.004t}$

10

Jason wants to buy a new HD television, but he thinks that if he waits, the quality of HD televisions will improve. The television he wants to buy costs $2500 now, and based on pricing trends, Jason thinks that the price will increase by 4% each year. Use the equation to predict when a new HD television will cost $3000.

$a)$ $about\ 6.4\ years$ $b)$ $about\ 3.6\ years$

$c)$ $about\ 6.6\ years$ $d)$ $about\ 4.6\ years$

A radioactive substance has a half-life of 32 years.
Determine the value of k and the equation of decay for this radioactive substance.

$a)\ y = ae^{-0.02166t}$

$b)\ y = ae^{0.02166t}$

$c)\ y = e^{-0.02166t}$

$d)\ y = ae^{-0.2166t}$

12

A radioactive substance has a half-life of 32 years.
How much of a 5-gram sample of the radioactive substance should be left after 100 years?

$a)\ 0.77\ gram$ $b)\ 0.57\ gram$

$c)\ 0.37\ gram$ $d)\ 0.47\ gram$

arbon-14 has a decay constant k of 0.00012. Use this information to determine the age of the objects based on the amount of Carbon-14.
a fossil that has lost 95% of its Carbon-14

$a)$ $about\ 23,964\ years\ old$

$b)$ $about\ 21,964\ years\ old$

$c)$ $about\ 22,964\ years\ old$

$d)$ $about\ 24,964\ years\ old$

arbon-14 has a decay constant k of 0.00012. Use this information to determine the age of the objects based on the amount of Carbon-14.
an animal skeleton that has 95% of its Carbon-14 remaining

$a)$ *about 437 years old*

$b)$ *about 247 years old*

$c)$ *about 427 years old*

$d)$ *about 742 years old*

15

Archeologists uncover an ancient wooden tool. They analyze the tool and find that it has 22% as much Carbon-14 compared to the likely amount that it contained when it was made. Given that the decay constant of Carbon-14 is 0.00012, about how old is the artifact?

$a)$ $about\ 12,618 years\ old$

$b)$ $about\ 12,628 years\ old$

$c)$ $about\ 12,658 years\ old$

$d)$ $about\ 13,618 years\ old$

Find the zeros and asymptotes of each function.

$$f(x) = \frac{(x-4)^2}{x+2}$$

$a)$ $zero\ at\ x = 4\ \ vertical\ asymptote x = -2$

$b)$ $zero\ at\ x = 4\ \ vertical\ asymptote x = 2$

$c)$ $zero\ at\ x = -4\ \ vertical\ asymptote x = -2$

$d)$ $zero\ at\ x = -4\ \ vertical\ asymptote x = -2$

17

Find the asymptotes of each function.

$$f(x) = \frac{(x+3)^2}{x-5}$$

a) $vertical\ asymptote x = -5\ and\ oblique\ asymptote\ at\ y = x + 11$

b) $vertical\ asymptote x = 5\ and\ oblique\ asymptote\ at\ y = x + 11$

c) $vertical\ asymptote x = 5\ and\ oblique\ asymptote\ at\ y = x - 11$

d) $vertical\ asymptote x = 5\ and\ oblique\ asymptote\ at\ y = 2x$

Find the zeros and asymptotes of each function.

$$f(x) = \frac{6x^2 + 4x + 2}{x + 2}$$

a) $zero\ at\ x = -1,3\ \ vertical\ asymptote x = -2$

b) $zero\ at\ x = -1\ \ vertical\ asymptote x = -2$

c) $zero\ at\ x = -1, \frac{1}{3}\ \ vertical\ asymptote x = -2$

d) $zero\ at\ x = -3\ \ vertical\ asymptote x = -2$

Find the asymptotes of each function.

$$f(x) = \frac{2x^2 + 7x}{x - 2}$$

a) $vertical\ asymptote x = -2\ and\ oblique\ asymptote\ at\ y = 2x + 11$

b) $vertical\ asymptote x = 2\ and\ oblique\ asymptote\ at\ y = x + 11$

c) $vertical\ asymptote x = 2\ and\ oblique\ asymptote\ at\ y = x - 11$

d) $vertical\ asymptote x = 2\ and\ oblique\ asymptote\ at\ y = 2x + 11$

20

Find the zeros and asymptotes of each function.

$$f(x) = \frac{3x^2 + 8}{2x - 1}$$

$a)$ $zero\ at\ x = \frac{8}{3}$ $vertical\ asymptote x = \frac{1}{2}$

$b)$ $zero\ at\ x = -3$ $vertical\ asymptote x = -2$

$c)$ $zero\ at\ x = -\frac{8}{3}$ $vertical\ asymptote x = \frac{1}{2}$

$d)$ $zero\ at\ x = 3$ $vertical\ asymptote x = 2$

21

Find the zeros and asymptotes of each function.

$$f(x) = \frac{2x^2 + 5}{3x + 4}$$

$a)$ $zero\ at\ x = 8\ vertical\ asymptote x = -3$

$b)$ $no\ zeros\ and\ vertical\ asymptote x = -\frac{4}{3}$

$c)$ $zero\ at\ x = -2\ vertical\ asymptote x = -1$

$d)$ $zero\ at\ x = 3\ vertical\ asymptote x = 2$

22

At a fundraising dinner, the underside of 200 plates were randomly tagged with a sticker to indicate winning a cash prize. The frequency table shows the number of winning plates for each prize. Construct a relative frequency table

Prize (X)	Frequency	Relative Frequency
\$5	150	
\$50	40	
\$100	9	
\$1000	1	

23

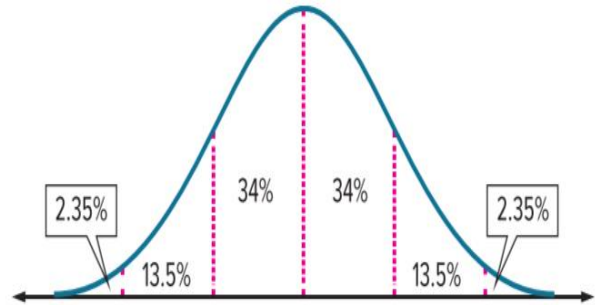
A normal distribution has a mean of 186.4 and a standard deviation of 48.9.
What range of values represents the middle 99.7% of the data?

$a)\ 39.7 < x < 333.1$

$b)\ x > 235.3$

$c)\ 59.7 < x < 233.1$

$d) x > 284.2$



24

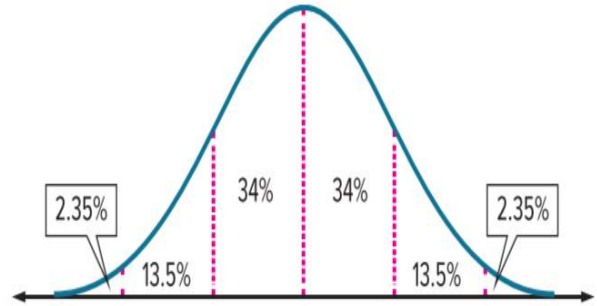
A normal distribution has a mean of 186.4 and a standard deviation of 48.9.
What range of values represents the upper 2.5% of the data?

$a)\ 39.7 < x < 333.1$

$b)\ x > 235.3$

$c)\ 59.7 < x < 233.1$

$d) x > 284.2$



25

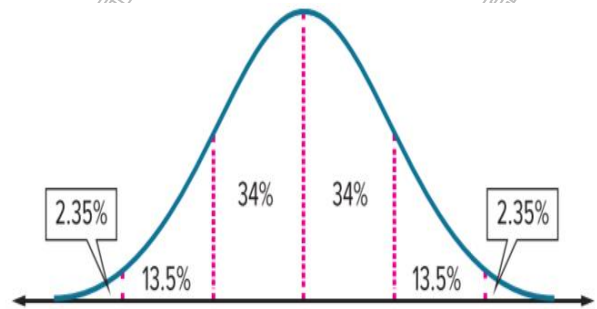
A normal distribution has a mean of 186.4 and a standard deviation of 48.9.
What percent of data will be greater than 235.3?

***a*) 2.5%**

***b*) 34%**

***c*) 16%**

***d*) 50%**



26

Find the z-value for each standard normal distribution.

$\sigma = 9.8$, $X = 55.4$, and $\mu = 68.34$

$a)\ z = -1.32$

$b)\ z = -2.19$

$c)\ z = 0.57$

$d)\ z = 1.57$

27

Find the z-value for each standard normal distribution.

$\sigma = 11.6$, $X = 42.80$, and $\mu = 68.2$

$a)\ z = -1.32$

$b)\ z = -2.19$

$c)\ \ z = 0.57$

$d)\ z = 1.57$

28

Find the z-value for each standard normal distribution.

$\sigma = 11.9$, $X = 119.2$, and $\mu = 112.4$

$a)\ z = -1.32$

$b)\ z = -2.19$

$c)\ \ z = 0.57$

$d)\ z = 1.57$

29

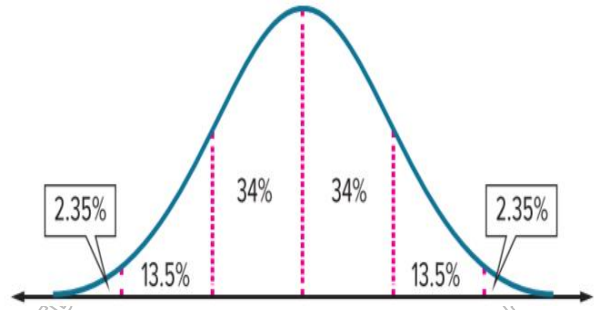
A normal distribution has a mean of 347.2 and a standard deviation of 13.9. What percent of the data is less than 319.4?

***a*) 2. 5%**

***b*) 34%**

***c*) 16%**

***d*) 50%**



30

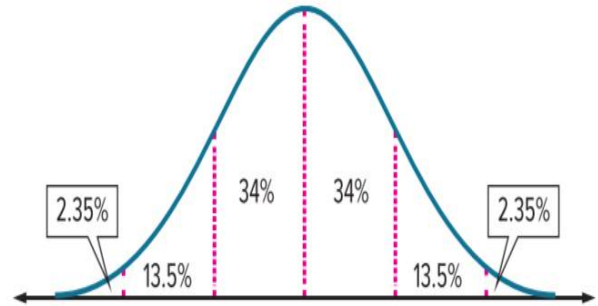
A normal distribution has a mean of 347.2 and a standard deviation of 13.9.
What percent of the data is greater than 361.1?

***a*) 2.5%**

***b*) 34%**

***c*) 16%**

***d*) 50%**



Determine whether each statement is never true

a. If k is a real number, then there is a value of θ such that cos θ = k.

b. sin θ = sin (θ + 2π)

c. If θ = nπ, where n is a whole number, then cos θ = 1.

d. If θ is an angle in standard position in which the terminal side lies in Quadrant IV, then sin θ is positive.

Determine whether each statement is always true

a. If k is a real number, then there is a value of θ such that cos θ = k.

b. sin θ = sin (θ + 2π)

c. If θ = nπ, where n is a whole number, then cos θ = 1.

d. If θ is an angle in standard position in which the terminal side lies in Quadrant IV, then sin θ is positive

33

Point P lies on the unit circle and on the line y = x. If θ is an angle in standard position in which the terminal side contains P, what can you conclude about sin θ and cos θ?

$a)\ \sin\theta = 2\cos\theta$

$b)\ -\sin\theta = \cos\theta$

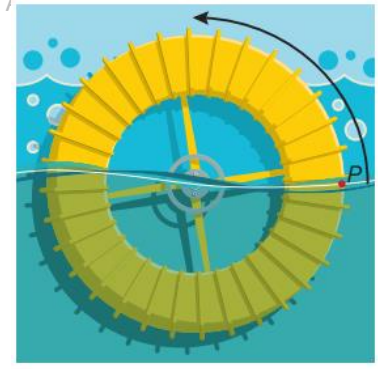
$c)\ \sin\theta = -2\cos\theta$

$d)\ \sin\theta = \cos\theta$

34

The wheel at a water park has a radius of 1 meter. As the water flows, the wheel turns counterclockwise, as shown. A point P on the edge of the wheel begins at the surface of the water. The function $f(x) = \sin x$ represents the height of P above or below the surface of the water as the wheel rotates through an angle of x radians.

How far does point P travel as the wheel rotates through an angle of $\frac{3\pi}{4}$



a) $\frac{5\pi}{4}$ meters

b) $\frac{11\pi}{4}$ meters

c) $\frac{3\pi}{4}$ meters

d) $\frac{\pi}{4}$ meters

35

A point on the edge of a car tire is marked with paint. As the car moves slowly, the marked point on the tire varies in distance from the surface of the road. The height in inches of the point is given by the function $h = -8\cos t + 8$, where t is the time in seconds.

a. What is the maximum and minimum height above ground that the point on the tire reaches?

$a)$ maximum 8 $inches$, minimum $-$ 8 $inches$

$b)$ maximum 8 $inches$, minimum 0 $inches$

$c)$ maximum 16 $inches$, minimum 0 $inches$

$d)$ maximum 16 $inches$, minimum $-$ 16 $inches$

Reveal 2

هيكل الاختبار

الجزء الالكتروني

11 Advanced

MATH 2024-2025

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الصفحة الرسمية

1

The temperature T in degrees Fahrenheit of a city t months into the year is approximated by the formula $T = 42 + 30\ sin\ \frac{\pi}{6}t$.

What is the highest monthly temperature for the city?

$a)\ 72°\ F$ $b)\ 68°\ F$

$c)\ 57°\ F$ $d)\ 75°\ F$

2

The temperature T in degrees Fahrenheit of a city t months into the year is approximated by the formula $T = 42 + 30\ sin\ \frac{\pi}{6}t$.

In what month does the highest temperature occur?

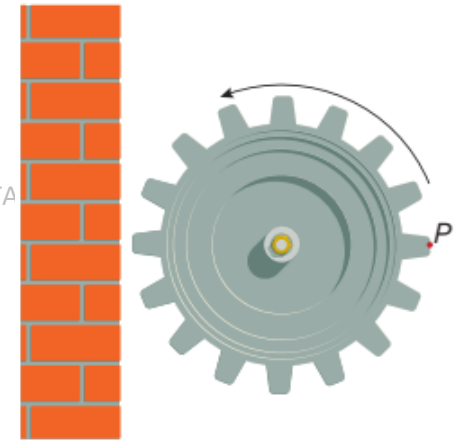
$a)\ 2rd\ month$ $b)\ 3rd\ month$

$c)\ 6rd\ month$ $d)\ 9\ rd\ month$

3

A machine in a factory has a gear with a radius of 1 foot. A point P on the edge of the gear begins at the furthest point from a wall, and then the gear begins to rotate counterclockwise. The function $f(x) = cos\ x + 2$ represents the distance of P from the wall as the gear rotates through an angle of x radians.

What is $f(\frac{\pi}{2})$? What does it represent?



a) P is 2 feet from the wall.

b) P is 3 feet from the wall.

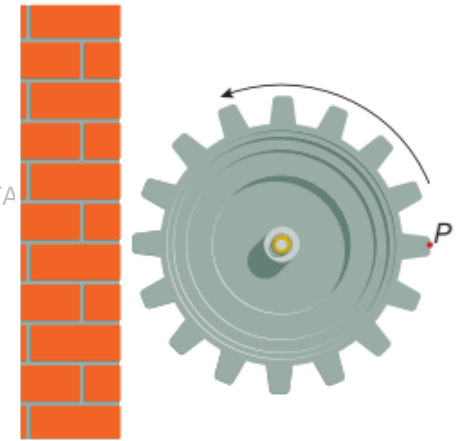
c) P is 4 feet from the wall.

d) P is 5 feet from the wall.

4

A machine in a factory has a gear with a radius of 1 foot. A point P on the edge of the gear begins at the furthest point from a wall, and then the gear begins to rotate counterclockwise. The function $f(x) = cos\ x + 2$ represents the distance of P from the wall as the gear rotates through an angle of x radians.

What are the maximum and minimum values of the function?



$a)$ maximum 1 $inches$, minimum $-$ 1 $inches$

$b)$ maximum 2 $inches$, minimum 0 $inches$

$c)$ maximum 3 $inches$, minimum $-$ 1 $inches$

$d)$ maximum 3 $inches$, minimum 1 $inches$

5

Which function represents exponential growth?

$a)\ 0.99^x$

$b)\ \left(\frac{2}{3}\right)^x$

$c)\ 0.75^x$

$d)\ \left(\frac{5}{4}\right)^x$

Which function represents exponential decay?

$a)\ 7^x$

$b)\ \left(\frac{2}{3}\right)^x$

$c)\ 1.02^x$

$d)\ \left(\frac{5}{4}\right)^x$

7

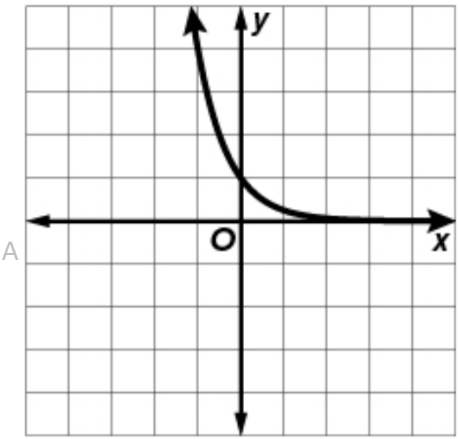
Which of the following equation represent the Graph?

$a)\ 0.8^x$

$b)\ \left(\frac{1}{2}\right)^x$

$c)\ 0.25^x$

$d)\ \left(\frac{2}{3}\right)^x$



8

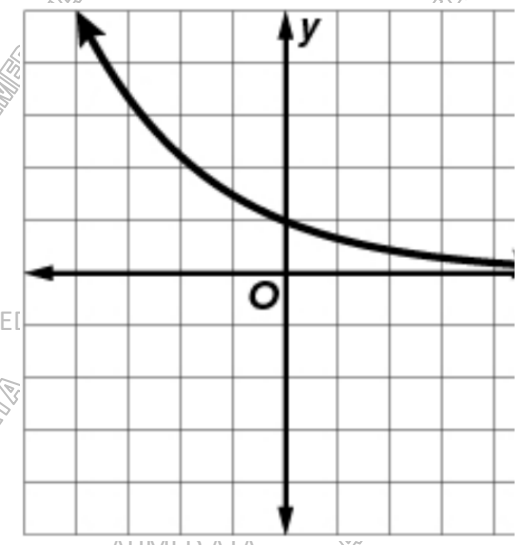
Which of the following equation represent the Graph?

$a)\ 0.8^x$

$b)\ \left(\frac{1}{2}\right)^x$

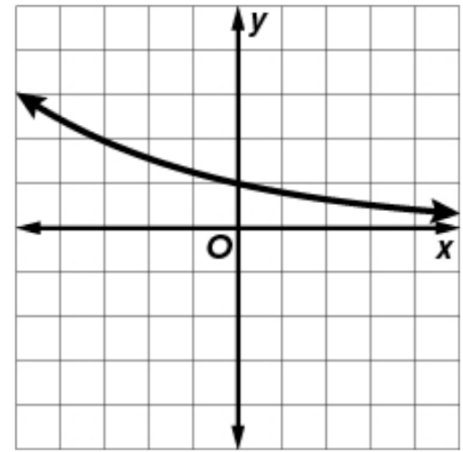
$c)\ 0.25^x$

$d)\ \left(\frac{2}{3}\right)^x$



Graph each function. Find the domain, range, y-intercept, asymptote, and end behavior.

$$f(x) = 0.8^x$$



10

Write each equation in exponential form.

$\log_{15} 225 = 2$

$a)\ 225 = 3^{-3}$

$b)\ 225 = 15^{2}$

$c)\ 225 = 5^{-2}$

$d)\ 225 = 3^{5}$

11

Write each equation in exponential form.

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

$a) \frac{1}{27} = 3^{-3}$

$b) \frac{1}{27} = 15^2$

$c) \frac{1}{27} = 5^{-2}$

$d) \frac{1}{27} = 3^5$

12

Write each equation in exponential form.

$$\log_5 \frac{1}{25} = -2$$

$$a)\ \frac{1}{25} = 3^{-3}$$

$$b)\ \frac{1}{25} = 15^{2}$$

$$c)\ \frac{1}{25} = 5^{-2}$$

$$d)\ \frac{1}{25} = 3^{5}$$

Write each equation in exponential form.

$\log_3 243 = 5$

$a)\ 243 = 3^{-3}$

$b)\ 243 = 5^3$

$c)\ 243 = 5^{-2}$

$d)\ 243 = 3^5$

14

Write each equation in logarithmic form.

$2^7 = 128$

$a)\ \log_7 128 = 2$

$b)\ \log_2 7 = 128$

$c)\ \log_2 128 = -7$

$d)\ \log_2 128 = 7$

15

Write each equation in logarithmic form.

$$7^{-2} = \frac{1}{49}$$

$a)\ \log_7 \frac{1}{49} = 2$

$b)\ \log_7 \frac{1}{49} = -2$

$c)\ \log_7 \frac{1}{2} = 49$

$d)\ \log_2 49 = 7$

16

Write each equation in logarithmic form.

$$64^{\frac{2}{3}} = 16$$

$a)\ \log_{64} 16 = -\frac{2}{3}$

$b)\ \log_{16} 64 = \frac{2}{3}$

$c)\quad \log_{64} 16 = \frac{3}{2}$

$d)\ \log_{64} 16 = \frac{2}{3}$

Solve each equation.

$$\log_4(2x^2 - 4) = \log_4 2x$$

$a)\ x = \{-1, 2\}$

$b)\ x = \{-1\}$

$c)\ x = \{1, 2\}$

$d)\ x = \{2\}$

Solve each equation.

$$\log_5(x^2 - 6) = \log_5 x$$

$a)\ x = \{-1, 3\}$ $b)\ x = \{3\}$

$c)\ x = \{-2, 3\}$ $d)\ x = \{-2\}$

Solve each equation.

$$\log_3(x^2 - 8) = \log_3 2x$$

$a)\ x = \{-2, 4\}$

$b)\ x = \{2, 4\}$

$c)\ x = \{4\}$

$d)\ x = \{-2\}$

20

Solve each equation.

$$\log_4(2x^2 - 20) = \log_4 6x$$

$a)\ x = \{2, 5\}$

$b)\ x = \{-2, -5\}$

$c)\ x = \{5\}$

$d)\ x = \{2\}$

21

Solve each equation.

$$\log_3 56 - \log_3 x = \log_3 7$$

$a)\ x = \{2\ , 8\}$

$b)\ x = \{-2, -5\ \}$

$c)\quad x = \{8\}$

$d)\ x = \{2\}$

22

Solve each equation.

$$5\log_2 x = \log_2 32$$

$a)\ x = \{2\ , 8\}$

$b)\ x = \{-2, -5\ \}$

$c)\quad x = \{8\}$

$d)\ x = \{2\}$

23

Solve each equation.

$$\log_2 x + \log_2 (x+2) = \log_2 8$$

$a)\ x = \{4\ , 2\}$

$b)\ x = \{-4, 2\ \}$

$c)\quad x = \{-4\}$

$d)\ x = \{2\}$

24

Solve each equation.

$$\log_4(x^2 + 2x + 1) = \log_4(11 - x)$$

$a)\ x = \{-5\ , 2\}$

$b)\ x = \{-4, 2\ \}$

$c)\quad x = \{-5\}$

$d)\ x = \{2\}$

25

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.

$$\log_4 30$$

$a) -0.2925$ $b) 2.1610$

$c) 2.4535$ $d) 0.7925$

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.

$$\log_4 20$$

$a) -0.2925$ $b) 2.1610$

$c) 2.4535$ $d) 0.7925$

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.

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

$a) -0.2925$

$b) 2.1610$

$c) 2.4535$

$d) 0.7925$

Use $\log_2 3 \approx 1.5850$, $\log_2 5 \approx 2.3219$, to approximate the value of each expression.

$$\log_2 625$$

$a)\ 0.2925$ $b)\ 9.2876$

$c)\ 7.925$ $d)\ 6.34$

Use $\log_2 3 \approx 1.5850$, $\log_2 5 \approx 2.3219$, to approximate the value of each expression.

$$\log_2 81$$

$a)\ 0.2925$ $b)\ 9.2876$

$c)\ 7.925$ $d)\ 6.34$

Use $\log_2 3 \approx 1.5850$, $\log_2 5 \approx 2.3219$, to approximate the value of each expression.

$$\log_2 243$$

$a)\ 0.2925$ $b)\ 9.2876$

$c)\ 7.925$ $d)\ 6.34$

Solve each equation. Round to the nearest ten-thousandth.

$$5^{4x-2} = 120$$

$a)\ 0.1925$

$b)\ -0.1150$

$c)\ 1.2437$

$d)\ -0.3869$

32

Solve each equation. Round to the nearest ten-thousandth.

$$6^{x+2} = 18$$

$a)\ 0.1925$

$b)\ -0.1150$

$c)\ \ 1.2437$

$d)\ -0.3869$

Solve each equation. Round to the nearest ten-thousandth.

$$2.4^{x+4} = 30$$

$a)\ 0.1925$

$b)\ -0.1150$

$c)\ 1.2437$

$d)\ -0.3869$

Solve each inequality. Round to the nearest ten-thousandth.

$$7^{3x-1} \geq 21$$

$a)\ \{x|x \geq 0.08549\}$

$b)\{x|x \geq 0.8549\}$

$c)\ \{x|x \geq -2.6977\}$

$d)\{x|x \geq 5\}$

Solve each inequality. Round to the nearest ten-thousandth.

$$3^x \geq 243$$

$a)\ \{x|x \geq 0.08549\}$

$b)\ \{x|x > 5\}$

$c)\ \{x|x \geq -2.6977\}$

$d)\ \{x|x \geq 5\}$

Solve each inequality. Round to the nearest ten-thousandth.

$$8^{x+4} \geq 15$$

$a)\ \{x|x > 0.08549\}$

$b)\ \{x|x > -0.2365\}$

$c)\ \{x|x > -2.6977\}$

$d)\ \{x|x > 0.1285\}$

Reveal 3

هيكل الاختبار

الجزء الالكتروني

11 Advanced

MATH 2024-2025

MR – AHMED ATA

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الصفحة الرسمية

1

Find the expression that makes the following statement true for all values of x within the domain.

$$\frac{x-6}{x+3} \cdot \frac{?}{x-6} = x-2$$

$a)(x+3)^2$

$b)\ (x-2)(x-6)$

$c)\ (x+3)(x-2)$

$d)\ (x-6)(x+3)$

2

Write a rational expression that simplifies to

$$\frac{x-1}{x+4}$$

$a)\ \frac{x^2-1}{x^2+5x+4}$

$b)\ \frac{x^2-4x-5}{x^2+5x+4}$

$c)\ \frac{x^2\ 4x+5}{x^2+5x+4}$

$d)\ \frac{x^2+1}{x^2+5x+4}$

3

Write a rational expression that simplifies to

$$\frac{x+y}{x-y} \div \frac{4}{y-x}$$

$a) \frac{x+y}{4}$

$b) -\frac{x+y}{4}$

$c) \frac{4}{x+y}$

$d) -\frac{4}{x+y}$

4

Identify the expression that does not belong with the other three.

$a)\ \dfrac{1}{x-1}$

$b)\ \dfrac{x^2+3x+2}{x-5}$

$c)\ \dfrac{x+1}{\sqrt{x+3}}$

$d)\ \dfrac{x^2+1}{3}$

5

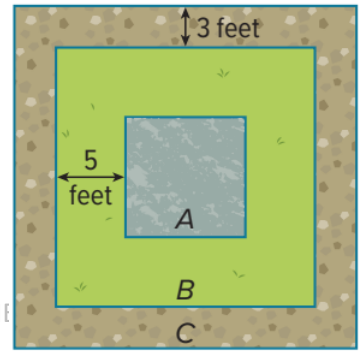
Anita's yard is being professionally landscaped. The final design will consist of a circular fountain x feet in diameter in square A surrounded by a grassy area in square B and a gravel pathway in square C that borders the grassy area. The square areas will be centered on each other as shown in the diagram. Square A will have a side length of 2x feet Anita would like the lengths of the sides to be proportional. For what values of x will the ratio of the lengths of a side of square C to a side of square B equal the ratio of the lengths of a side of square B to a side of square A? Explain your reasoning. What diameter could the fountain have?

$a) x = -12.5$

$b)\ x = 12.5$

$c)\ x = 5.25$

$d)\ no\ solution$



6

Simplify each expression.

$$\frac{1}{12a} + 6 - \frac{3}{5a^2}$$

$$a)\ \frac{5a^2 + 5a - 36}{60a}$$

$$b)\ \frac{360a^2 + 5a - 36}{60a^2}$$

$$c)\ \frac{360a^2 + 5a + 36}{60a^2}$$

$$d)\ \frac{36a^2 + 5a - 36}{60a^2}$$

7

Simplify each expression.

$$\frac{5}{6x^2+46x-16}+\frac{5}{6x^2+57x+72}$$

$a)\ \dfrac{2x+41}{(3x-1)(x+8)(2x+3)}$

$b)\ \dfrac{41}{(3x-1)(x+8)(2x+3)}$

$c)\ \dfrac{42x+41}{6(3x-1)(x+8)(2x+3)}$

$d)\ \dfrac{42x+41}{(3x-1)(x+8)(2x+3)}$

Simplify each expression.

$$\frac{\frac{2}{a-1}+\frac{3}{a-4}}{\frac{6}{a^2-5a+4}}$$

$a)\ \frac{5a-36}{60}$

$b)\ \frac{5a-6}{a^2}$

$c)\ \frac{5a+36}{60a^2}$

$d)\ \frac{5a-11}{6}$

9

Find the slope of the line that passes through each p air of points.

$$A\left(\frac{2}{p}, \frac{1}{2}\right) \text{ and } B\left(\frac{1}{3}, \frac{3}{p}\right)$$

$a) -\frac{2}{3}$

$b) \frac{6}{5}$

$c) -\frac{3}{2}$

$d) \frac{11}{6}$

10

Hachi needs to buy fencing for her rectangular garden.
Write an expression, in simplest form, that represents the number of feet of fencing Hachi needs.

$a)\ \dfrac{2xy+(6+2y)(y-2)}{y(y-2)}$

$b)\ \dfrac{2xy+(6+2x)(y-2)}{y(y-2)}$

$c)\ \dfrac{2xy+(6+2x)(y+2)}{y(y-2)}$

$d)\ \dfrac{2xy+(6+2x)(y-2)}{(y-2)}$

Determine the excluded value of *x* for each function.

$g(x) = \frac{-2}{x+2}$

$f(x) = \frac{10}{x-3}$

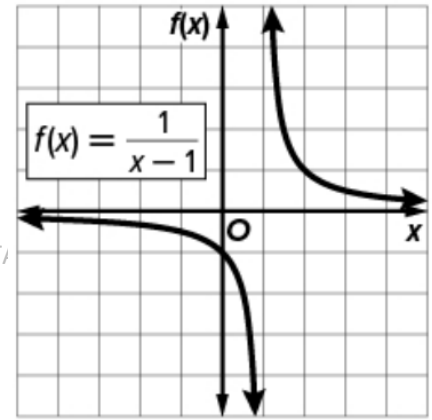
$f(x) = \frac{5}{2x+3}$

$g(x) = \frac{5}{7x-9}$

12

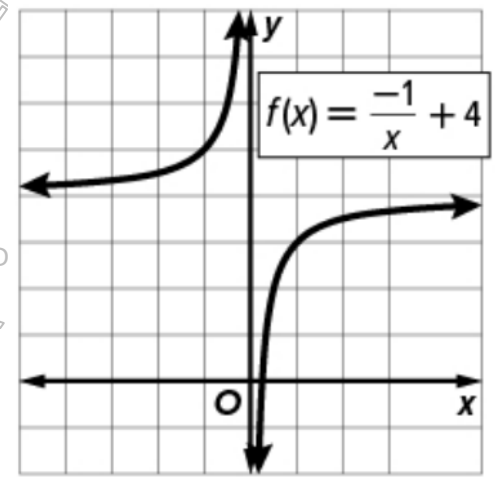
Identify the asymptotes, domain, and range of each function.

$$f(x) = \frac{1}{x-1}$$



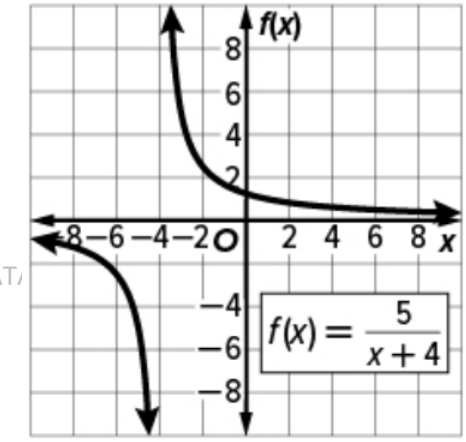
Identify the asymptotes, domain, and range of each function.

$$f(x) = -\frac{1}{x} + 4$$



Identify the asymptotes, domain, and range of each function.

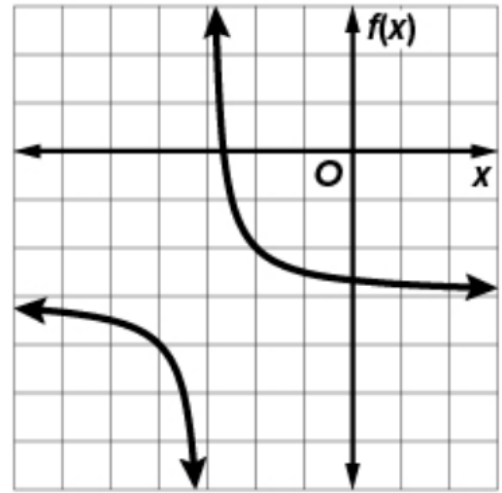
$$f(x) = \frac{5}{x+4}$$



15

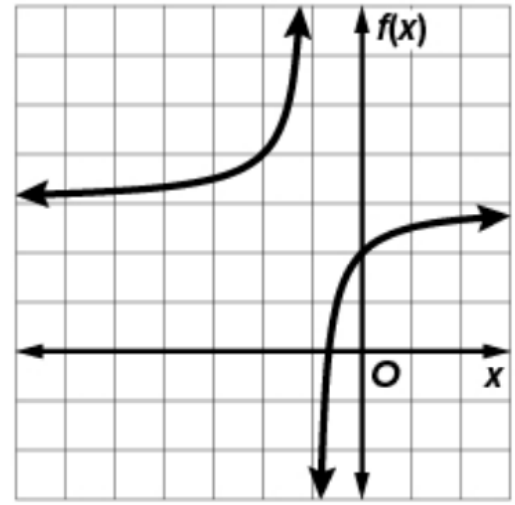
Graph each function. State the domain and range.

$$f(x) = \frac{1}{x+3} - 3$$



Graph each function. State the domain and range.

$$f(x) = \frac{-1}{x+1} + 3$$



17

Solve each inequality.

$$3 - \frac{4}{x} > \frac{5}{4x}$$

18

Solve each inequality.

$$\frac{x-2}{x+2}+\frac{1}{x-2}>\frac{x-4}{x-2}$$

19

Solve each inequality.

$$\frac{x}{5} + \frac{2}{3} < \frac{3}{x-4}$$

20

Solve each inequality.

$$\frac{x-2}{x+4} > \frac{x+1}{x+10}$$

21

Solve each equation

$$\frac{6}{x+2} = \frac{x-7}{x+2} + \frac{1}{4}$$

***a*) -10** ***b*) -9**

***c*) 10** ***d*) 9**

22

Solve each equation $\frac{t-5}{t-3} = \frac{t-3}{t+3} + \frac{1}{t-3}$

***a*) -10** ***b*) -9**

***c*) 10** ***d*) 9**

23

Berton divides his sports T-shirts by team. Then he randomly selects four T-shirts from each team and records the size.
classify this sample.

$a)$ $systematic$ $b)$ $self-selected$

$c)$ $convenience$ $d)$ $stratified$

24

The project manager at a new business inspects every tenth smart phone produced to check that it is operating correctly.
classify this sample.

$a)$ $systematic$ $b)$ $self-selected$

$c)$ $convenience$ $d)$ $stratified$

25

A grocery store manager asks its customers to submit suggestions for items on the salad bar during the week.
classify this sample.

$a)$ $systematic$ $b)$ $self-selected$

$c)$ $convenience$ $d)$ $stratified$

26

To determine the music preferences of their customers, the manager of a music store selected 10 customers in the store to participate in an interview.

classify this sample.

$a)$ $systematic$ $b)$ $self-selected$

$c)$ $convenience$ $d)$ $stratified$

27

Administrators at a community library want to know the type of materials patrons are most likely to use. Every Friday, they record the type of media each patron uses.

classify this sample.

$a)$ $systematic$ $b)$ $self-selected$

$c)$ $convenience$ $d)$ $stratified$

Identify this sample or question as biased.

a) **A random sample of eight people is asked to select their favorite food for a survey about Americans' food preferences.**

b) **Every tenth student at band camp is asked to name his or her favorite band for a survey about the campers.**

c) **Are you a member of any after-school clubs?**

d) **How many glasses of water do you drink a day?**

Identify this sample or question as unbiased.

a) **Every fifth person entering a museum is asked to name his or her favorite type of book to read for a survey about reading interests of people in the city.**

b) **Do you think that the workout facility needs a new treadmill and racquetball court?**

c) **Which is your favorite type of music, pop, or country?**

d) **Do you play any extracurricular sports?**

A student spun a spinner with 4 equal sections 100 times and recorded the results.

a) Find the theoretical probability of spinning blue.

Spinner Section	Frequency
Red	35
Blue	38
Green	13
Yellow	14

b) Find the experimental probability. of spinning blue.

A student flipped a coin 125 times and recorded the results.

a. Find the theoretical probability of the coin landing on heads.

Coin Result	Frequency
Heads	73
Tails	52

b. Find the experimental probability of the coin landing on heads.

32

A fair 6-sided die is rolled 150 times.

Number on Die	Frequency
1	32
2	18
3	27
4	16
5	33
6	24

a) Find the theoretical probability of rolling a 3.

b) Find the experimental probability of rolling a 3

Tiana sells handmade earrings online. Last month she sold 60% of her inventory. Design and run a simulation that can be used to estimate the probability of selling inventory.

Step 1 Describe the probability model.

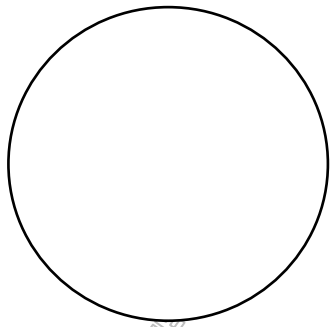
P (selling) = P (not selling) =

Step 2 The number of trials to be conducted.

Step 3 Conduct the simulation.

using a random number generator or cards or spinner

P(selling)= P (not selling) =



Lamar designed a soccer computer game. He coded the program such that a player will make a goal on 35% of the attempts. Paola is testing the game and thinks there may be an error in the game's programming. She attempted to make 30 goals and only 4 were successful. Run and evaluate a simulation and decide whether Paola is correct.

Step 1 Describe the probability model.

P (make a goal) = P (not goal) =

Step 2 The number of trials to be conducted.

Step 3 Conduct the simulation.

using a random number generator or cards or spinner

P(make a goal)= P (not goal) =

Reveal

4

هيكل الاختبار

الجزء الكتابي

11 Advanced

MATH 2024-2025

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الصفحة الرسمية

Key Concept • Finding the Standard Deviation

Step 1 Find the mean μ.

Step 2 Find the square of the difference between each data value x_n and the mean, $(x_n - \mu)^2$.

Step 3 Find the sum of all the values in **Step 2.**

Step 4 Divide the sum by the number of values in the set of data n. This value is the variance.

Step 5 Take the square root of the variance.

Formula: $\sigma = \sqrt{\frac{\sum_{k=1}^{n} (x_k - \mu)^2}{n}}$

2

A barber wants to purchase new professional shears from a Web site. The prices of all of the shears are shown in the table. Use the standard deviation formula to find and interpret the standard deviation of the data. Round your answers to the nearest cent

Cost of Shears ($)			
50	165	55	79
84	68	38	42

3

Ms. Sanchez keeps track of the total number of books each student in the book club reads during the school year. Use the standard deviation formula to find and interpret the standard deviation of the data. Round your answers to the nearest tenth.

Books Read		
9	6	12
8	9	14
10	13	8

4

At a fundraising dinner, the underside of 200 plates were randomly tagged with a sticker to indicate winning a cash prize. The frequency table shows the number of winning plates for each prize. Construct a relative frequency table

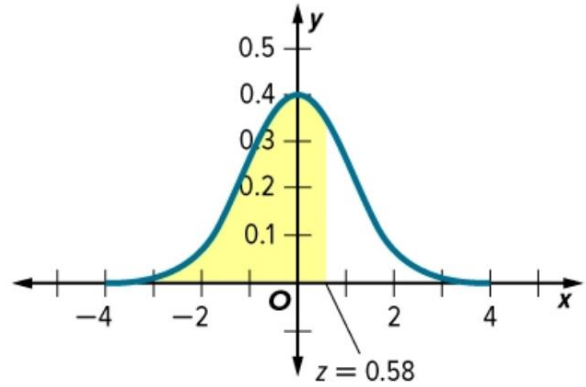
Prize (X)	Frequency	Relative Frequency
\$5	150	
\$50	40	
\$100	9	
\$1000	1	

5

Use a table to find the area under the normal curve for each interval.

$z > 0.58$

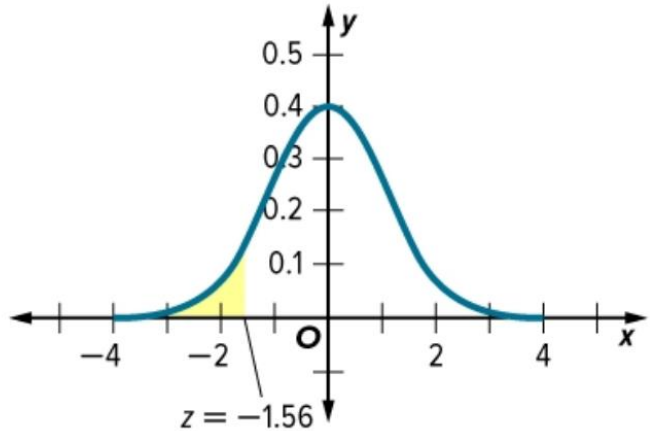
z	0.00	...	0.08
0.0	0.5000		0.5319
⋮	...	...	...
0.5	0.6915	...	0.7190



Use a table to find the area under the normal curve for each interval.

$z < -1.56$

z	0.00	...	0.06
–3.4	0.0003		0.0003
⋮	...	...	...
–1.5	0.0668	...	0.0594

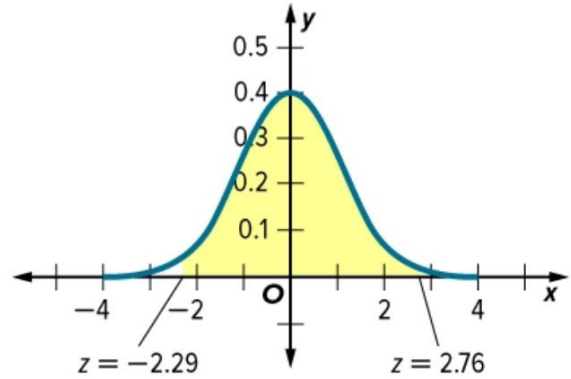


Use a table to find the area under the normal curve for each interval.

$-2.29 < z < 2.76$

z	0.00	...	0.09
–3.4	0.0003		0.0002
⋮	...	...	...
–2.2	0.0139	...	0.0110

z	0.00	...	0.06
0.0	0.5000		0.5359
⋮	...	...	...
2.7	0.9965	...	0.9971



8

A traffic roundabout has a diameter of 200 meters. How far does an automobile travel in the roundabout if it goes one-fourth of the way around?

The length of the minute hand of an analog clock is 5 inches. If the minute hand rotates from 12 noon to 12:40 p.m., then how far does its point move?

Rewrite each degree measure in radians and each radian measure in degrees.

$18°$

$6°$

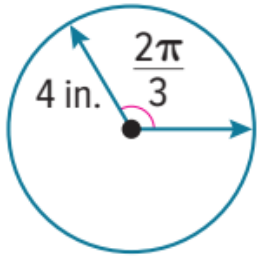
$-820°$

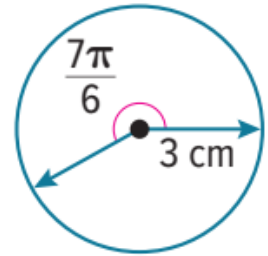
4π

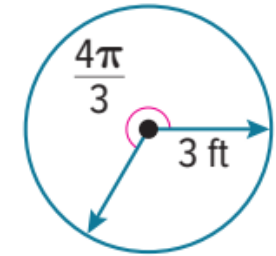
$-\frac{9\pi}{2}$

$-\frac{7\pi}{12}$

Find the length of each arc. Round to the nearest tenth.







Find both the degree and radian measures of the angle through which the hour hand on a clock rotates from 5 a.m. to 10 p.m.

13

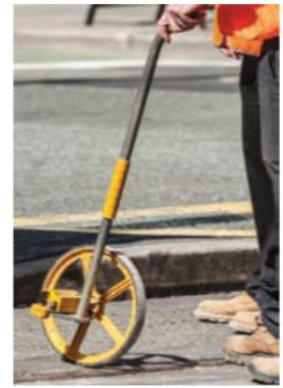
A truck with 16-inch radius wheels is driven at 77 feet per second (52.5 miles per hour). Find the measure of the angle through which a point on the outside of the wheel travels each second. Round to the nearest degree.

14

Earth makes one full rotation on its axis every 24 hours. How long does it take Earth to rotate through 150°? Neptune makes one full rotation on its axis every 16 hours. How long does it take Neptune to rotate through 150°?

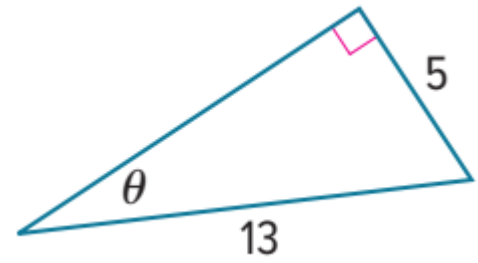
15

If a surveyor's wheel with a diameter of 19 inches completes $\frac{5}{6}$ of a rotation, what is the total distance traveled in inches? Round to the nearest hundredth if necessary.



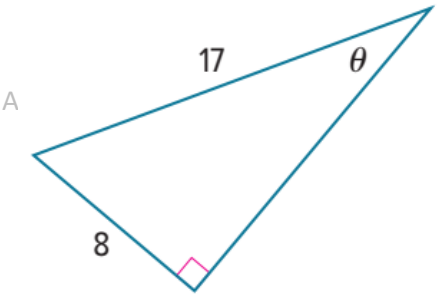
16

Find the exact values of the six trigonometric functions for angle θ.



17

Find the exact values of the six trigonometric functions for angle θ.



18

In a right triangle, $\angle A$ and $\angle B$ are acute. Find the values of the five-remaining trigonometric functions.

$$\tan A = \frac{8}{15}$$

19

In a right triangle, $\angle A$ and $\angle B$ are acute. Find the values of the five-remaining trigonometric functions.

$$\sin B = \frac{4}{9}$$

20

In a right triangle, $\angle A$ and $\angle B$ are acute. Find the values of the five-remaining trigonometric functions.

$$\cos A = \frac{3}{10}$$

21

Find the amplitude and period of each function.

$y = 2\cos\theta$

$y = \cos\frac{1}{2}\theta$

22

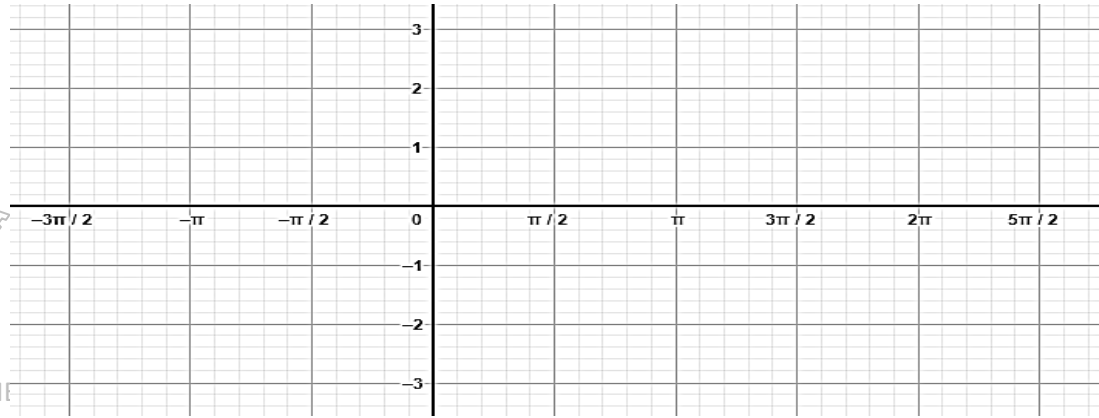
Find the amplitude and period of each function.

$$y = \frac{1}{2}\sin 2\theta$$

$$y = 3\cos 2\theta$$

Find the amplitude and period of each function. Then graph the function.

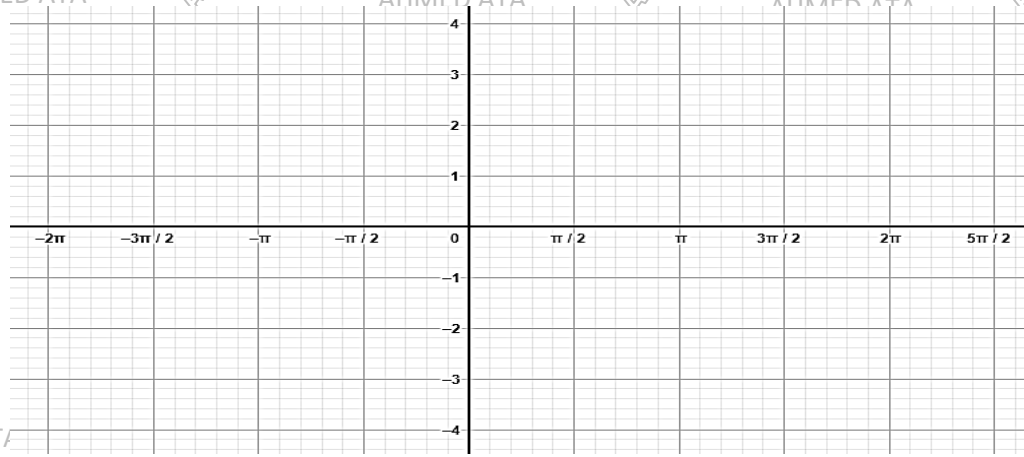
$$y = 3 \sin \theta$$



24

Find the amplitude and period of each function. Then graph the function.

$$y = 4\cos 2\theta$$



25

Find the amplitude and period of each function. Then graph the function.

$$.y = \frac{3}{2}\sin\theta$$