11

If $2y - c = 3c$, then $y =$

A) $\frac{c}{2}$

B) c

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

D) $2c$

12

The solution set of the equation $|3x-1|=7$ is

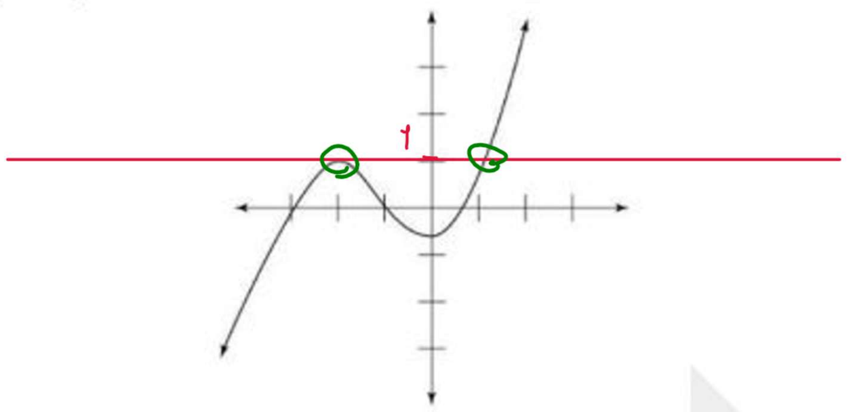
A) {2}

B) $\left\{2, \frac{2}{3}\right\}$

C) $\left\{-2, \frac{2}{3}\right\}$

D) $\left\{-2, \frac{8}{3}\right\}$

13



If this graph represents f(x), then the number of solutions to the equation f(x)=1 is

A) Zero

B) One

C) Two

D) Three

14

A square with an area of 25 is changed into a rectangle with an area of 24 by increasing the width and reducing the length. If the length is reduced by two, by how much was the width increased?

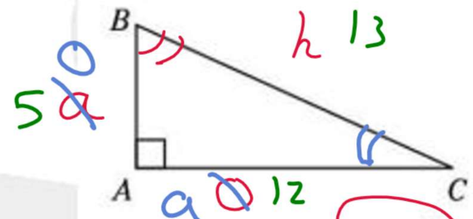
A) 2

B) 3

C) 4

D) 5

15



In triangle ABC above, if $\sin B = \frac{12}{13}$ and $\cos B = \frac{5}{13}$, what is $\tan C$?

A) $\frac{5}{13}$

B) $\frac{12}{13}$

C) $\frac{5}{12}$

D) $\frac{12}{5}$

"Average" Mean = Sum / no.
Mode = Most repeated
Median = Middle "arrange"
Range = -S

3,4,5
5,12,13

16

Samira took four exams. Her score on the first three were 89, 85, and 90. If her average (arithmetic mean) on all four exams was 90, what did she get on the fourth exam?

Mean = Sum / no.

$90 = \frac{89+85+90+x}{4}$

Shift Solve

96

17

If $p>0$ and the distance between the points $(4,-1)$ and $(-2,p)$ is 10, find p.

$dist = \sqrt{(y-y)^2 + (x-x)^2}$

$10 = \sqrt{(-1-p)^2 + (4+2)^2}$

D

7

18

If $a - b = 8$ and $ab = 10$, find $a^2 + b^2$.

$a^2 - 2ab + b^2 = 64$

$a^2 - 2(10) + b^2 = 64$

$a^2 + b^2 = 64 + 20$

D

$a = 9.099$

$b = 1.099$

$a^2 + b^2 = (9.099)^2 + 1.099^2$

$= 83.9$

84

84

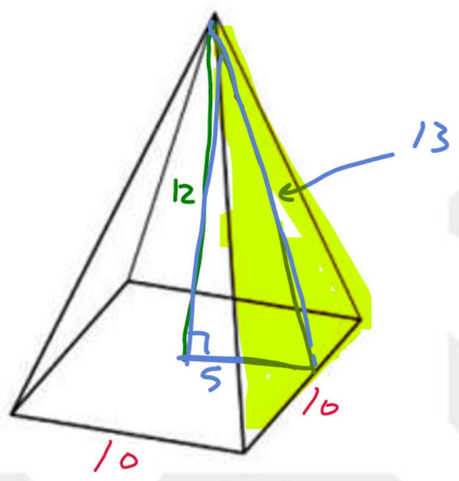
Salik Resm

$(a+b)^2 = a^2 + 2ab + b^2$

$(a-b)^2 = a^2 - 2ab + b^2$

$a^2 - b^2 = (a-b)(a+b)$

19



$A\triangle \times 4 + A\square$

$\frac{1}{2}(10)(13) \times 4 + 10^2$

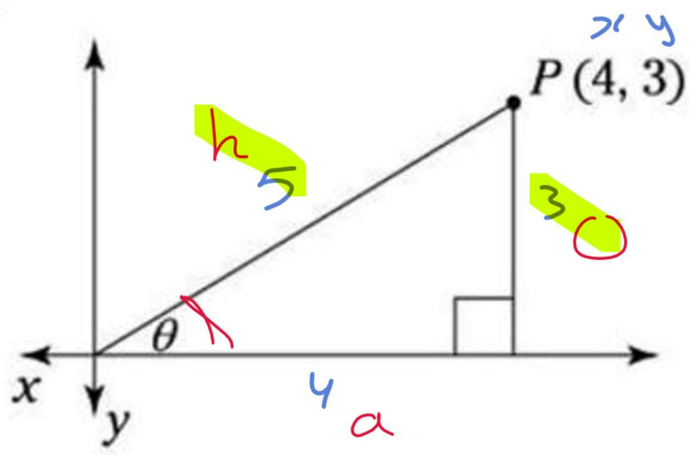
$= 360$

The preceding pyramid has a square base of length 10 centimeters and height of 12 centimeters

Determine the total surface area of all five faces, in square centimeters.

360

20



SOH
CAH
TOA

In the preceding drawing, what is $5(\sin\theta)$?

$5\left(\frac{3}{5}\right) = 3$

3

21

If a>0, which of the following statements must be true?

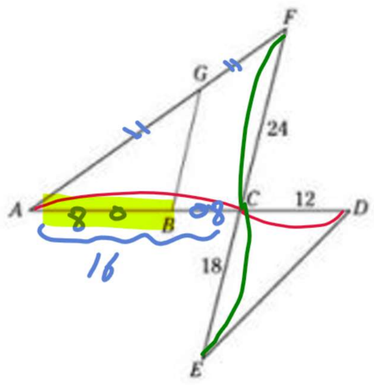
A) $a^2>a$

B) $a>\frac{1}{a}$

C) $2a>a$

D) $\frac{1}{a}<1$

22



In this diagram, AF//ED, GB\\EF, and AG=GF. What is the length of AB?

(Note:Figure not drawn to scale)

A) 18

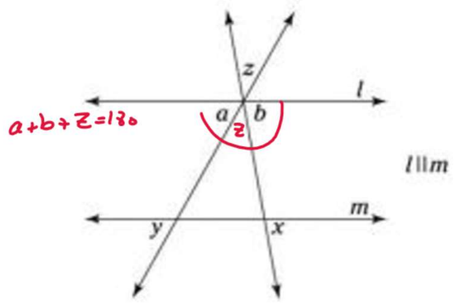
B) 16

C) 12

D) 8

ELKABLY TEAM

1



a+b+z=180

In the preceding diagram, x=70° and y=30°. The sum a+b+z equals

A) 90°

B) 100°

C) 120°

D) 180°

2

y= 20x+25

The preceding equation models the cose,y,in dollars, that a sports shop charges a customer to rent a pair of skis for x days. The total cost consists of a flat fee plus a charge per day. When the equation is graphed on the xy-plane<,what does the y-intercept of the graph represents in terms of the model?

A) Total daily charges of $ 45

B) A flat fee of $ 25

C) A charge per day of $20

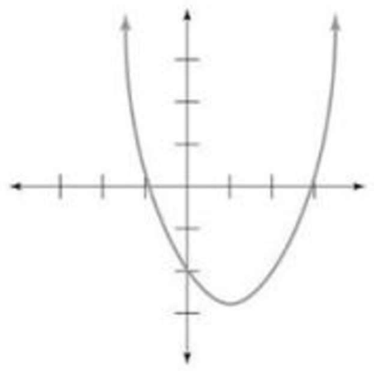
D) A charge per day of $25

y = mx + b

slope: Average rate y per x

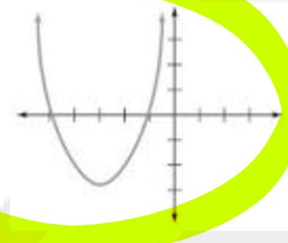
y-int: initial starting at x=0

3

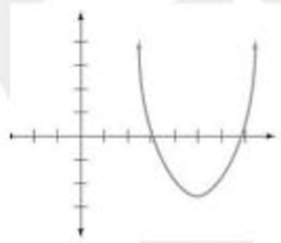


The above graph represents a function ,f(x). Which of the following graphs can represent f(x+4)

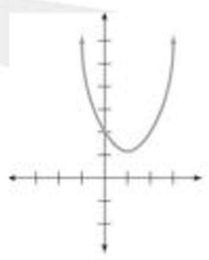
A)



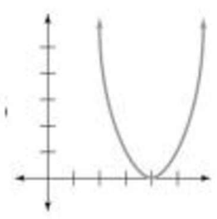
B)



C)



D)



f(x)+a ↑

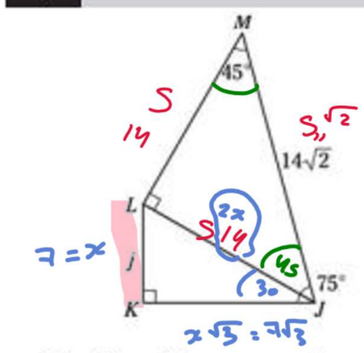
f(x)−a ↓

f(x+a) ←

f(x−a) →

−f(x) reflect x-axis

4



In the diagram above, the measure of side j is

A) 7

B) $7\sqrt{2}$

C) $7\sqrt{3}$

D) 14

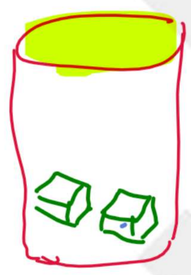
5

A cylindrical glass containing ice cubes is filled to the very top with iced tea. The base of the glass is 20 square centimeters and the height is 10 cm. If 78 cubic centimeters of iced tea is needed to fill the glass to the top, which of the following is closest to the total volume of ice cubes in the glass?

$V = \pi r^2 h$

$20 \times 10 - 78$

$= 122$



A) 22

B) 78

C) 122

D) 145

6

$3 \times 60 = 180$

Max has three hours to study for his tests the next day. He decides to spend k percent of this time studying for math. Which of the following represents the number of minutes he will spend studying for math?

$K\% \times 180$

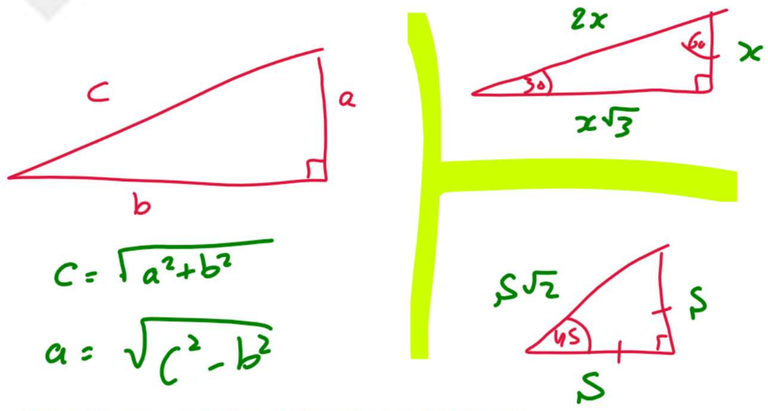
$\frac{K}{100} \times 180$

A) $\frac{k}{300}$

B) $\frac{3k}{100}$

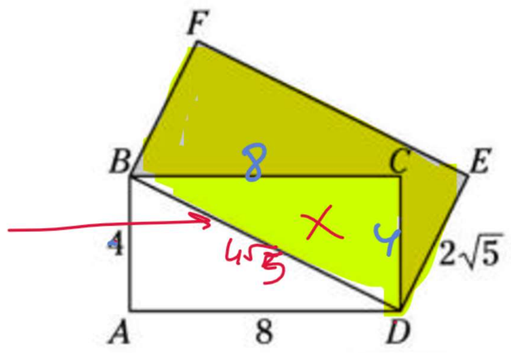
C) $\frac{100k}{180}$

D) $\frac{180k}{100}$



7

$\sqrt{4^2+8^2}$



Given that ABCD and BDEF are rectangles, find the shaded area of the diagram

A-shaded = ▭ − △

$= 2\sqrt{5} \times 4\sqrt{5} - \frac{1}{2}(8)(4)$

$= 24$

A) 24

B) $16\sqrt{5}$

C) 20

D) $8\sqrt{5}$

8

$r = 13$

C

A 26-inch-diameter bicycle wheel rotates a half turn. What is the exact distance traveled, in inches, of the logo printed on the edge of the wheel?

$C = \frac{2\pi r}{2}$

$\frac{2\pi(13)}{2} = 13\pi$

A) 26π

B) 13π

C) 6.5π

D) 3.25π

9

$$p(t)=\frac{20{,}000(2)^{\frac{t}{4}}}{t}$$

The preceding equation represents the population of a yeast culture, p, for t weeks after the population was seeded. What is the population after 8 weeks?

A) 10,000

B) 20,000

C) 40,000

D) 160,000

10

A certain radioactive element has a half-life of 20 years. Thus, a sample of 100 grams deposited in 1980 would have decayed to 50 grams by 2000 and to 25 grams by 2020. How much of this sample would remain in 2100?

A) $\frac{25}{16}$ grams

B) $\frac{25}{8}$ grams

C) $\frac{25}{4}$ grams

D) $\frac{25}{2}$ grams

11

A circle in the xy-plane has the equation $(x-4)^2+(y-1)^2=9$. Which of the following points lies in the interior of the circle?

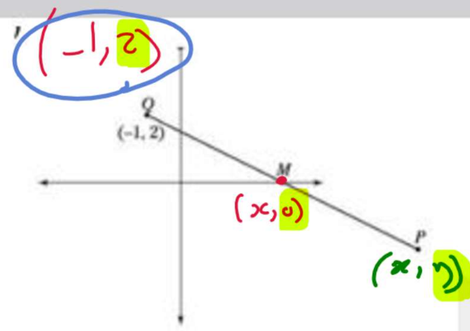
A) (-4, 1)

B) (-1, 1)

C) (0, 0)

D) (4, -1)

12



In this figure, the slope of line ℓ is $-\frac{1}{3}$, and M is the midpoint of the line PQ. What are the coordinates of Point P?

A) (8,−1)

B) (9,−1)

C) (10,−2)

D) (11,−2)

13

If $ab=n$, $b+c=x$, and $n\neq 0$, which of the following must equal n?

A) ax+c

B) ax-c

C) a(x-c)

D) x(a-c)