

ACT 2 FEBRUARY 2025

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1- If $f(x) = x^2 - 3x - 1$ find $f(-2)$

- a. 8
- b. 9
- c. -9
- d. -8

2- $81m^2 - 4b^2$

- A) $(9m-2b)(9m+2b)$
- B) $(9m+2b)(9m+2b)$
- C) $(9m-2b)(9m-2b)$
- D) $9(m-2b)(m+2b)$

3- $y = 0.34x - 3$ and x represents time, find y if the time was 3 hours and 20 min

- A) 60
- B) 63
- C) 65
- D) 80

4-If $x^2 - 6 = 0$ find the zeros.

A) $-\sqrt{6}$

B) $\sqrt{6}$

C) 3

D) $\pm\sqrt{6}$

5-Mohammed bought 5 kinds of pizza each of a price p, 3 cans of soda each of price S and 1 bottle of juice with a price j, write the equation that represents the total amount he paid for the pizza, soda and juice.

A) $5p + 3S + J$

B) $3P + 3S + J$

C) $5p + S + 3J$

D) $p + 5J + 3S$

6-Circle inscribed in square with length 20, find the circle circumference.

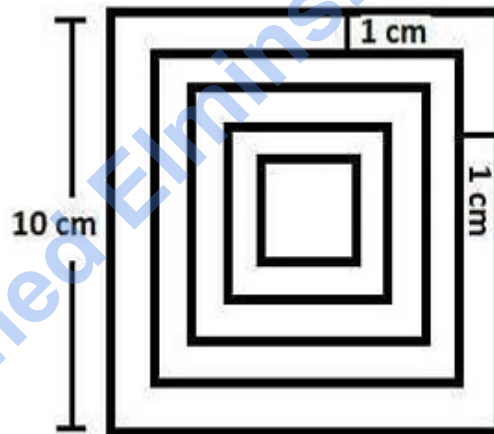
A) $C = 20$

B) $C = 10\pi$

C) $C = \frac{\pi}{20}$

D) $C = 20\pi$

7-In the figure, 5 squares are positioned such that the distance between each square is 1 cm, if the side of the largest square is 10 cm, what is the ratio of the area of the largest square to the smallest square?



a) 2:1

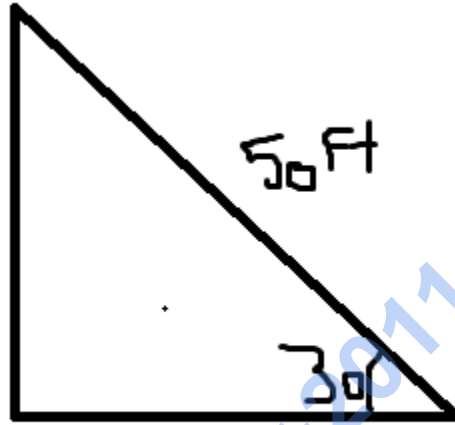
b) 5:3

c) 25:9

d) 25:1

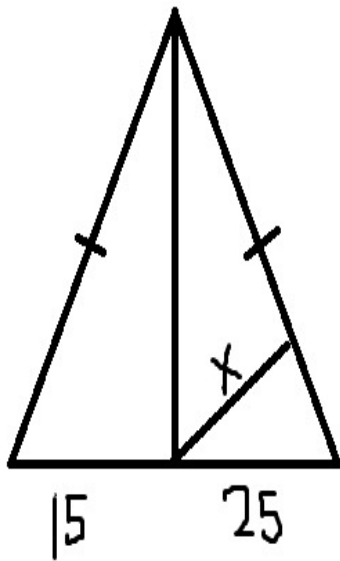
8-A bike ramp is 50 ft. long, and the angle of elevation is 30° , to the nearest hundredth of a foot, how high is the end of the ramp?

- A) 25.00
- B) 28.87
- C) 35.36
- D) 43.30



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9-Find x



- a) 15
- B) 25
- C) 12.5
- d) 30

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10-According to the following table if Jacob weight is 160 lb. What is his width?

width	weight
10	100
11	110
12.3	123
14.9	149

a)15

b)14

c)16

d)17

11- simplify $\frac{\sqrt{8x^3}}{\sqrt{27x}}$

a) $\frac{\sqrt{6}}{9}x$

b) $\frac{2\sqrt{6}}{9}x$

c) $\frac{4\sqrt{6}}{9}x$

d) $\frac{9}{2\sqrt{6}}x$

12-Sarah invested \$5000 with 3% simple annual interest rate. What will be the interest in Sarah's account after t years?

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13- These tables show some ordered pairs from two linear equations.

Equation 1

x	-3	-2	0	2
y	9	7	3	-1

Equation 2

x	-2	-1	1	3
y	7	2	-8	-18

What is the value of x-coordinate for the solution to the system of equations?

- a) -2
- b) -1
- c) 2
- d) 7

14 If $-3x + 7 < 16$ which of the following must be true?

A) $x > -3$

B) $x < -3$

C) $x \geq -3$

D) $x \leq -3$

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15 Quadrilateral ABCD is inscribed in a circle with a diameter AC such that $\angle DAC = 55^\circ$ and $\angle BCA = 90^\circ$, what are $\angle BAD$ and $\angle BCD$?

- A) $\angle BAD = 105^\circ$ and $\angle BCD = 75^\circ$
- B) $\angle BAD = 100^\circ$ and $\angle BCD = 80^\circ$
- C) $\angle BAD = 95^\circ$ and $\angle BCD = 85^\circ$
- D) $\angle BAD = 95^\circ$ and $\angle BCD = 90^\circ$

16 -If a, b, m and n are integers, $m > 0$, $n < 0$ and $x^2 + mx + n = (x + a)(x + b)$, what must be true of the product and the sum of a and b?

- A) $ab > 0$ and $a + b > 0$
- B) $ab > 0$ and $a + b < 0$
- C) $ab < 0$ and $a + b > 0$
- D) $ab < 0$ and $a + b < 0$

17- The solution to this system of inequalities forms a triangular region.

$$y \leq 3x$$

$$y \leq -\frac{1}{2}x + 4$$

$$y \geq 0$$

What is the area, in square units, of the region?

A- $2\frac{2}{7}$

B- $4\frac{4}{7}$

C- $13\frac{5}{7}$

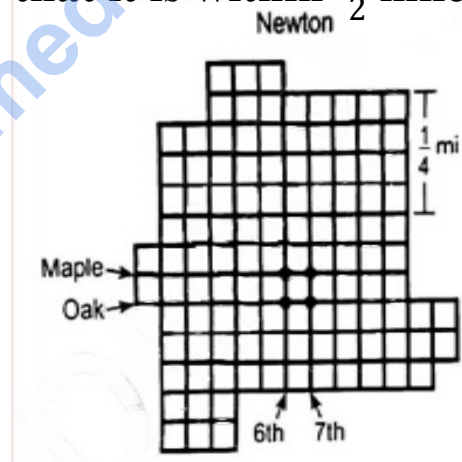
D- $27\frac{3}{7}$

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In the geometric sequence $\{16, n, 36, \dots\}$, the second term n is the geometric mean of 16 and 36. What is the value of n ?

- A) 24
- B) 25
- C) 26
- D) 28

The town of Newton purchased a new emergency siren that can be heard within $\frac{1}{2}$ mile radius. Assuming the square blocks are all the same size, at which corner should the police install the siren so that it is within $\frac{1}{2}$ mile of any street corner in Newton?



A man is 5 ft 7 in tall. He walks until the end of his shadow and the end of the tree's shadow meet. The distance between him and the tree is 15 ft 9 in, and he is 9 ft 2 in away from the end of the shadows. Find the height of the tree.

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