

Which of the following is equal to $1 + \frac{1}{1 + \frac{1}{3}} = ?$

- A) 3/2
- B) 4/3
- C) 7/4
- D) 1

Which of the following answers is the factorization of $3x^3 - 300x$?

- A) $3(x - 10)(x + 10)$
- B) $3x(x - 10)(x + 10)$
- C) $3x(x + 10)(x + 10)$
- D) $3x(x - 10)(x - 10)$

Simplify $\frac{a^3 + 2a^2b + ab^2}{a^2 - b^2} \cdot \frac{a - b}{a^2b + ab^2}$

- A) b
- B) 1/b
- C) 1/a+b
- D) 1/a-b

Which area model represents the factorization $6x^2 + 15x + 9 = (2x + 3)(3x + 3)$?

A)

x^2	x^2	x^2	x	x	x
x^2	x^2	x^2	x	x	x
x^2	x^2	x^2	x	x	x
x	x	x	1	1	1
x	x	x	1	1	1
x	x	x	1	1	1

B)

x^2	x^2	x^2	x	x
x^2	x^2	x^2	x	x
x^2	x^2	x^2	x	x
x	x	x	1	1
x	x	x	1	1
x	x	x	1	1

C)

x^2	x^2	x	x
x^2	x^2	x	x
x^2	x^2	x	x
x	x	1	1
x	x	1	1
x	x	1	1

D)

x^2	x^2	x	x	x
x^2	x^2	x	x	x
x^2	x^2	x	x	x
x	x	1	1	1
x	x	1	1	1
x	x	1	1	1

Which of the following is false?

1. Let $f(x) = \sqrt[5]{x}$, then the function is an odd function.

2. Let $f(x) = \sqrt[3]{x}$, then the function is an odd function.

3. Let $f(x) = \sqrt{x}$, then the function is an odd function.

A) Only 1

B) 1 and 2

C) Only 3

D) All of them

Which function is the inverse of $f(x) = \frac{1}{2}(3 - 3x)$?

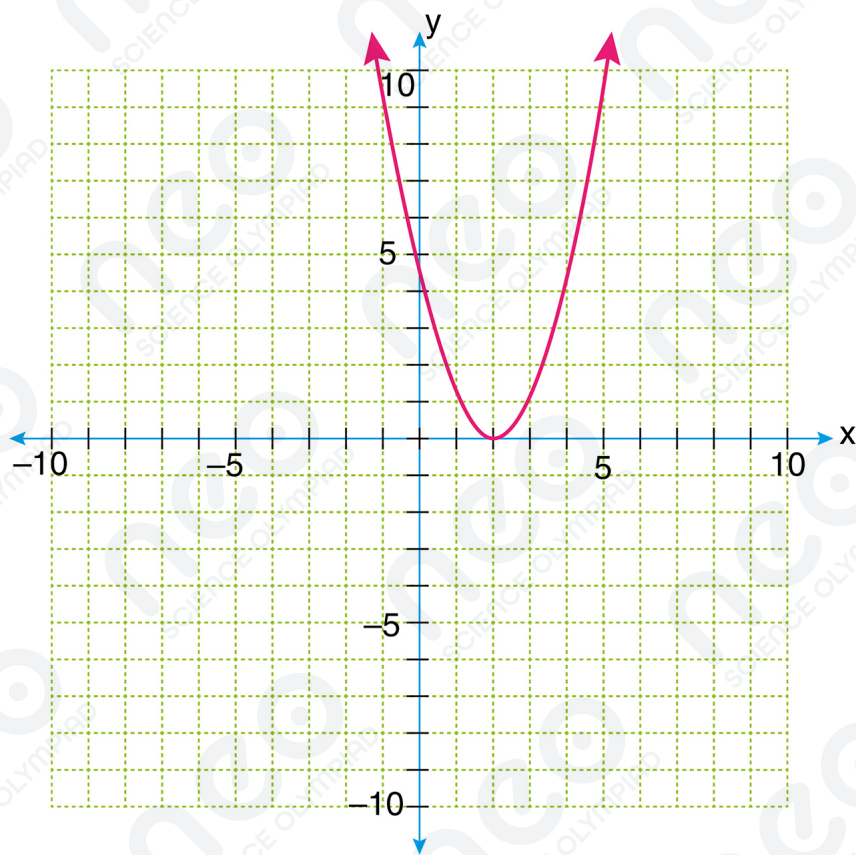
A) $f^{-1}(x) = 1 - \frac{2}{3}x$

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

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

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

What is the range of the function?



- A) $[0, +\infty]$
- B) $[0, +\infty)$
- C) $[5, +\infty]$
- D) $(-\infty, +\infty)$

What is the value of $\log_8 4 + \log_8 16$?

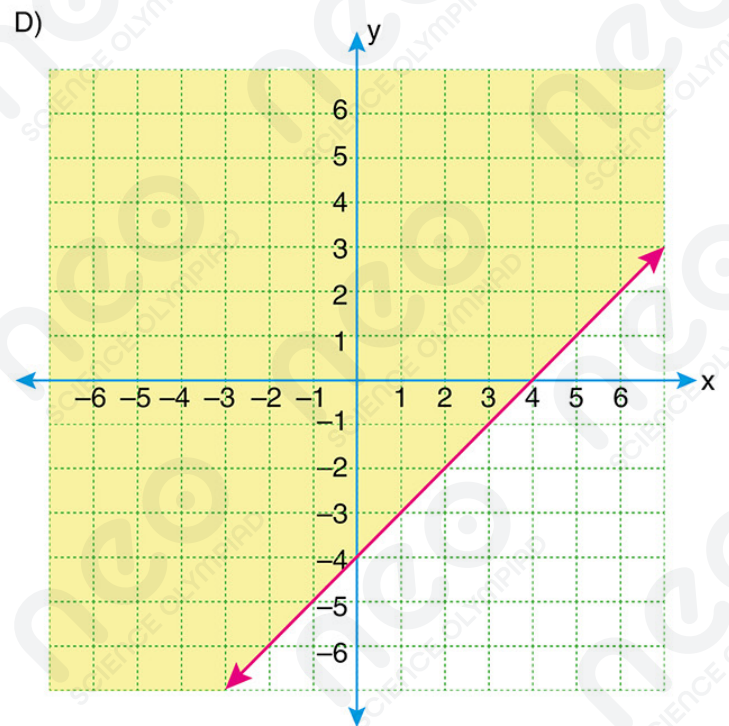
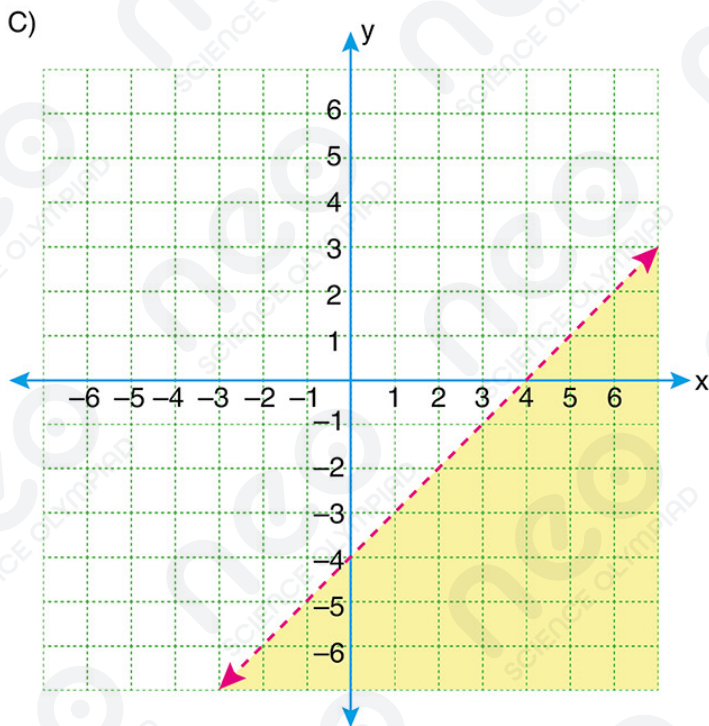
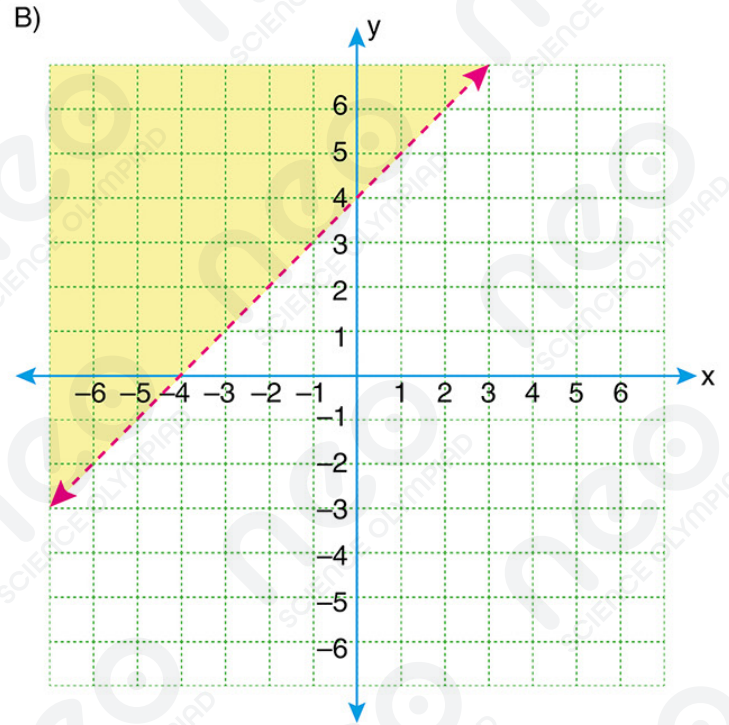
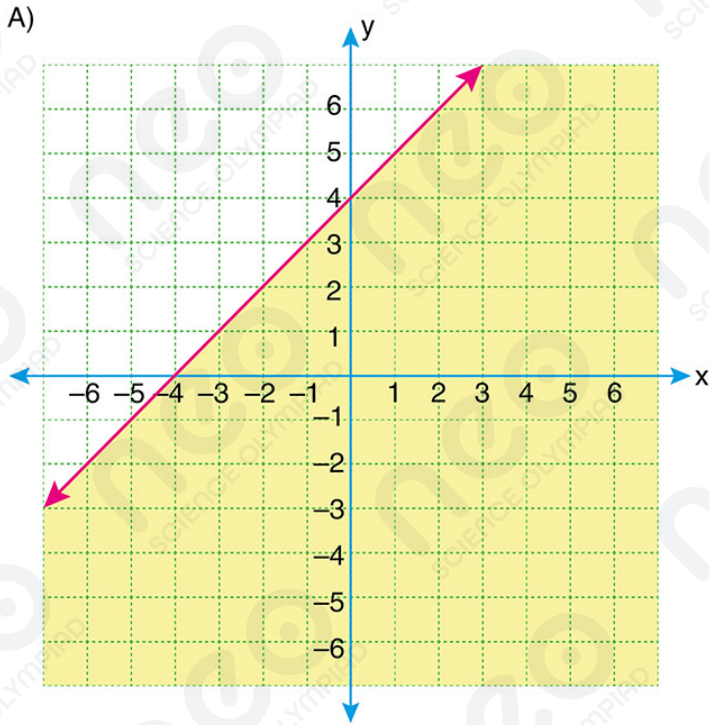
- A) 0 B) 1 C) 2 D) 4

In a school of 100 students, what is the probability of a randomly selected student being either a girl or a Grade-4?

	Boys	Girls	Total
Grade-1	8	17	25
Grade-2	15	10	25
Grade-3	12	13	25
Grade-4	15	10	25
Total	50	50	100

- A) 10/100
B) 25/100
C) 60/100
D) 65/100

Consider the inequality $y \geq x - 4$. Which of the following graphs represents the solution set of the inequality?



$$x^2 - 5x + 6 > 0$$

What is the solution of the inequality?

- A) $x \in (-\infty, 2) \cup (3, \infty)$
- B) $x \in (-\infty, -5) \cup (3, \infty)$
- C) $x \in (-\infty, 3) \cup (5, \infty)$
- D) $x \in (-\infty, 3) \cap (5, \infty)$

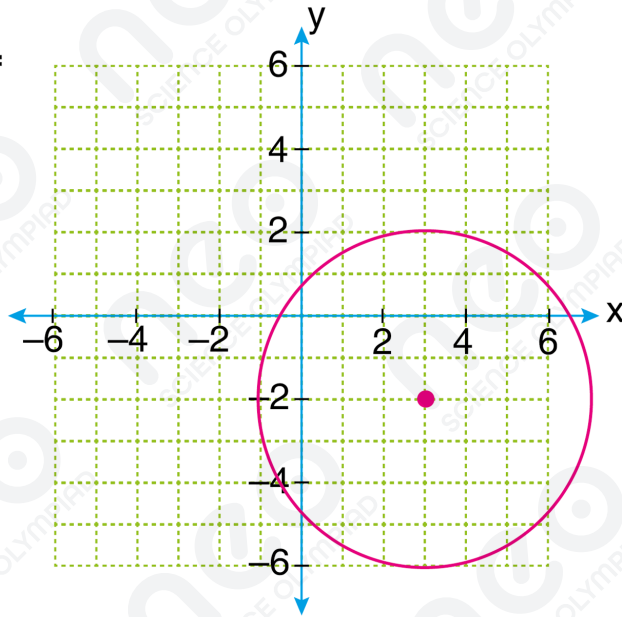
X-Intercepts of the $x^2 + y^2 = 25$ are;

- A) (5,0)
- B) (-5,0)
- C) ($\pm 5, 0$)
- D) (0, ± 5)

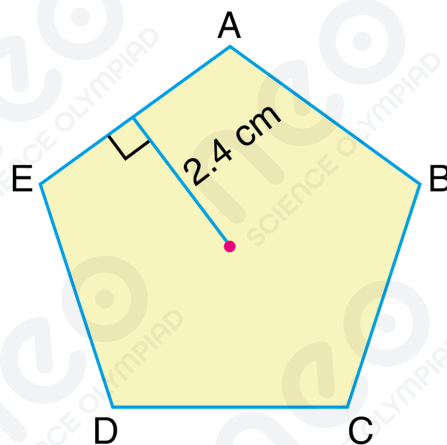
In the right triangle XYZ, $\sin(X) = 5/13$. Find $\tan(X)$.

- A) 5/12
- B) 4/5
- C) 4/3
- D) 3/4

What is the equation of the circle?



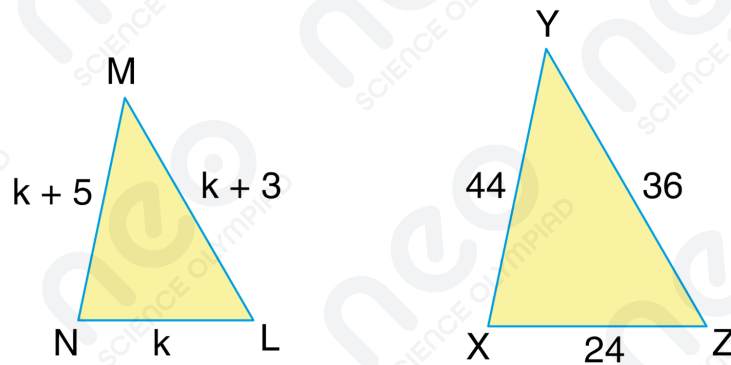
- A) $(x-3)^2 + (y+2)^2 = 16$
- B) $(x+3)^2 + (y+2)^2 = 4$
- C) $(x+3)^2 + (y-2)^2 = 16$
- D) $(x-3)^2 + (y+2)^2 = 4$



The figure **ABCDE** is a regular pentagon. $\text{Area}(\text{ABCDE})=48 \text{ cm}^2$. Find the length of **AB**.

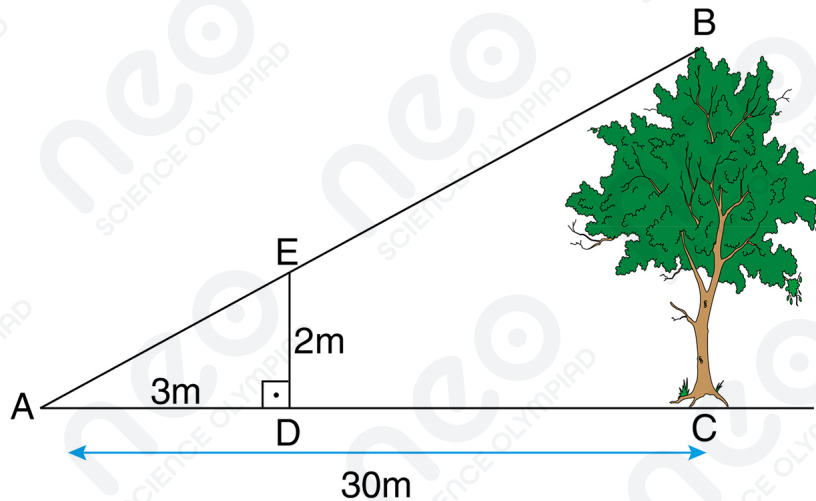
- A) 6 cm
- B) 8 cm
- C) 10 cm
- D) 12 cm

The triangle NML is similar to the triangle XYZ. This diagram shows some of the dimensions of the triangles in units. Based on the diagram, what is the length of LM in units?



- A) 9
- B) 18
- C) 24
- D) 30

Find the height of the tree (BC) if $AD = 3\text{m}$,
 $DE = 2\text{m}$ and $AC = 30\text{m}$



- A) 10
- B) 15
- C) 18
- D) 20

Which of the following is FALSE?

- A) Quadrant I; $\cos\theta$, $\sin\theta$, and $\tan\theta$ are positive
- B) Quadrant II; only $\sin\theta$ is positive
- C) Quadrant III; $\cos\theta$ and $\tan\theta$ are positive
- D) Quadrant IV; $\sin\theta$ and $\tan\theta$ are negative