

## **EST July 2025** **Math Questions**

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1)

A Circle with central angle 120  
and a radius 3.

What will be the measure of the  
arc ?

2)

$$2 - |3x + 1| = 1$$

How many solutions does the  
equation above have?

3)

Find the value of  $(f \circ g)(2)$

$$f(x) = 3x + 5$$

$$g(x) = x^2 - 3$$

4)

Hana goes to her school every  
day on foot. The distance  
between her home and her  
school is 2 km.

One day, she decided

To go with her bike, she was  
cycling at a speed of 20 km/h .

She noticed that by bike, she  
went faster than walking by 12  
minutes.

What was her speed while  
walking?

5)

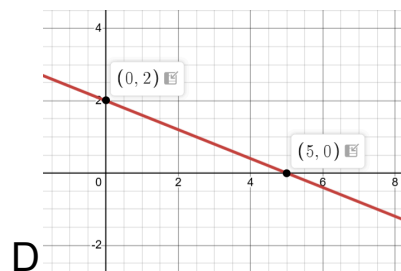
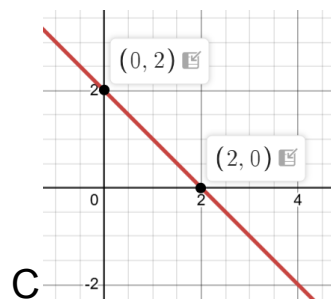
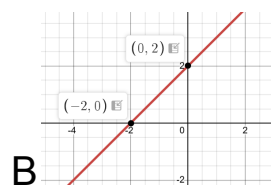
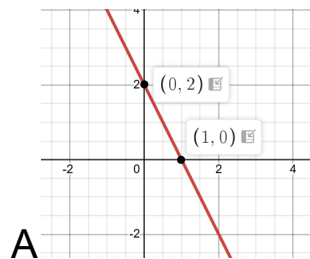
$$4x^4 + cx^3 + kx^2 + 3 = (x + 4)$$

$$(x + 3)(bx + a)(bx + a)$$

What is the value of b ?

6)

Which of the following is the graph of the line  $y = -2x + 2$  ?



7)

$$2x^3 + x^2 + mx + 5 = (x - 3)(x - a)(x - b)$$

What is the value of  $m$  ?

8)

What is the value of  $f^{-1}(61)$

When  $f(x) = 3x^2 - 86$ ?

9)

What is the minimum of the following function?

$$y = 2x^2 - 11$$

10)

Group of cards with values  
3,3,3,3,4,4,4,5,5,5,5,5

What is the probability of you drawing 2 same cards from the set of numbers above knowing that you draw cards without replacement ?

11)

y varies directly with x , if  $x = 2b$

then  $y = 9$  and  $b = 2$

What is the value of y when  $x =$

12 ?

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