TASK№1

1: Which of the following functions is quadratic ?

A: $f(x) = 2^2$

B: $f(x) = 3(4 - x)$

C: $f(x) = 5/x - 1$

D: $f(x) = 7x(x + 3)$

E: None

SOLUTION

A: $f(x) = 2^2 = 4$ - This function is constant;

B: $f(x) = 3(4 - x) = 12 - 3x$ - This is a linear function;

C: $f(x) = 5/x - 1$ - This hyperbolic function;

D: $f(x) = 7x(x + 3) = 7x^2 + 21$ - This is a quadratic function.

ANSWER

$$D: f(x) = 7x(x + 3) = 7x^2 + 21 \text{ - a quadratic function}$$

TASK№3

What is the value of the y-coordinate of the y-intercept of the function

$$f(x) = -3x^2 + 5x - 4$$

SOLUTION

The graph of the function intersects the ordinate if x $= 0$.

$$y = f(0) = \left(-3x^2 + 5x - 4\right)\big|_{x=0} = -3 * 0^2 + 5 * 0 - 4 = -4$$

ANSWER

$$y = f(0) = -4$$

TASK№4

What is the value of the x-coordinate of the vertex of the function shown below?

$$f(x) = (x + 6)(x - 2)$$

SOLUTION

As we know the vertex of the parabola $a * x^2 + b * x + c$ found from the expression

$$x_{vertex} = -\frac{b}{2 * a}$$

$$f(x) = (x + 6)(x - 2) = x^2 - 2x + 6x - 12 = 1 * x^2 + 4 * x - 12$$

In our case $a = 1$ and $b = 4$

$$x_{vertex} = -\frac{b}{2*a} = -\frac{4}{2*1} = -2$$

ANSWER

$$x_{vertex} = -2$$

TASK№5

In which direction does the graph of the function shown below open?

$$f(x) = -2x^2 - 5x - 4$$

A: Up
B: Down
C: Left
D: Right

SOLUTION

Since the coefficient of x^2 negative - $a = -2$,then the schedule is open down

ANSWER

B: Down

TASK№6

Which of the quadratic functions listed is written in intercept form?
A: $Y = (x + 1)(x - 5)$
B: $Y - 4 = -3(x - 5)$
C: $Y = 2x^2 + 3x - 5$
D: $Y - 7 = -2(x + 3)^2$

ANSWER

A: $Y = (x + 1)(x - 5)$

TASK№7

Which of the following are the x-intercepts on the graph of the function shown below?

$$f(x) = 2(x + 1)(x - 2)$$

Choose all answers that are correct.

$$-1 \quad -2 \quad 2 \quad -4$$

ANSWER

-1 and 2

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