Answer on Question #56450 – Math – Algebra

1. The graph of $y = 3x^2 - 4x + 2$ opens downward.
A: True
B: False

Solution

It's false, because in the form $y = ax^2 + bx + c = 3x^2 - 4x + 2$ the coeffitient $a = 3 > 0$ and the graph of $y = 3x^2 - 4x + 2$ opens upward.

Answer: B: False.

---

2. The graph of $y = 2x^2 - 4x - 2$ has a y-intercept of $(0, 2)$
A: True
B: False

Solution

It's false, because if $x = 0$ then $y = 2 \cdot 0 - 4 \cdot 0 - 2 = -2$ and the graph of $y = 2x^2 - 4x - 2$ has a y-intercept of $(0, -2)$.

Answer: B: False.

---

3. What is the axis of symmetry for the graph of $y = 2x^2 - 8x + 2$?

x = _____ _____

Solution

If we rewrite the expression of the given function in the next form

$$y = 2x^2 - 8x + 2 = 2(x^2 - 4x + 1) = 2(x^2 - 4x + 4) - 6 = 2(x - 2)^2 - 6,$$

then the axis of symmetry for its graph is $x = 2$.

Answer: $x = 2$.

---

4. What is the vertex for the graph of $y - 4 = -(x + 1)^2$?

A: (4,-1)
B: (1,-4)
C: (-1,4)
D: (-4,1)

Solution

If we rewrite the expression of the given function in the following form

$$y = -(x + 1)^2 + 4,$$

then the vertex for the graph of $y - 4 = -(x + 1)^2$ is the point $(-1, 4)$.

Answer: C: $(-1,4)$.

---

5. What are the x-intercepts for the graph of $y = 3(x - 1)(x + 6)$?

A: (-1,0) and (6,0)
B: (1,0) and (-6, 0)
C: (0, -1) and (0,6)
D: (0,1) and (0,-6)

Solution

To find the x-intercepts, we must solve the equation

$$3(x-1)(x+6)=0.$$

We received that $x=1$ or $x=-6$. Then the x-intercepts for the graph of $y=3(x-1)(x+6)$ are $(1,0)$ and $(-6,0)$.

Answer: B: $(1,0)$ and $(-6,0)$.

---

6. What is the vertex of the graph of this function $y=-(x+2)(x+4)$?

A: (-2,-4)
B: (3,-35)
C: (-3,1)
D: (-3,-1)

Solution

We transform the expression of the given function from the intercept form into the vertex form:

$$y=-(x+2)(x+4)=-(x^2+6x+8)=-(x^2+6x+9)+1=-(x+3)^2+1$$

Then the vertex for the graph of $y=-(x+2)(x+4)$ is $(-3,1)$.

Answer: C: $(-3,1)$.

---

7. The point $(-1,0)$ lies on the graph of the function $y=2x^2-8x+6$
A: True
B: False

Solution

It's false, because $2(-1)^2-8(-1)+6=16\neq 0$.

Answer: B: False.
