

Quadratics

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\sqrt{-1} = i$$

$$i^2 = -1$$

$$y = a(x - h)^2 + k$$

$$y = ax^2 + bx + c$$

$$y = a(x - r_1)(x - r_2)$$

$$h = \frac{-b}{2a}$$

IM2

1

Select all expressions equivalent to $162x^2 - 72$.

- A $2(9x - 6)^2$
- B $2(81x^2 - 36)$
- C $2(9x - 6)(9x + 6)$
- D $18(3x^2 - 2)^2$
- E $18(3x - 2)(3x + 2)$

2

***Standard: A-REI**

Write an equivalent form of the quadratic function $f(x) = 2x^2 + 12x + 20$ by dragging and dropping the correct values and operation symbols into the vertex form provided.

0
1
2
3
4
5
6

7
8
9
+
-

 $f(x) = \square (x \square \square)^2 \square \square$

3

The function $f(x)$ is given by the equation $f(x) = 3(x^2 + 2)$. The values for the quadratic function $h(x)$ are shown in the table.

x	-2	-1	0	1	2
h(x)	6	-3	-6	-3	6

Which statement is true?

- A. The y -intercept of $h(x)$ is 12 units below the y -intercept of $f(x)$.
- B. The y -intercept of $f(x)$ is 12 units below the y -intercept of $h(x)$.
- C. The y -intercept of $f(x)$ is 4 units above the y -intercept of $h(x)$.
- D. The y -intercept of $f(x)$ is 6 units above the y -intercept of $h(x)$.

- 4 The polynomial $2x^2 + x - 15$ can be written as $(2x - 5)(x + 3)$. At which values of x does the graph of the polynomial cross the x -axis?

One solution to x is **A**.

The other solution to x is **B**.

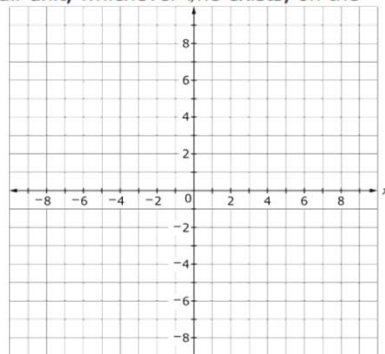
Circle the correct answers.

Box A	Box B
-2.5	1.5
2.5	3
5	-1.5
-5	-3

- 5 A quadratic equation is given as $3x^2 + 4x + 8 = 0$. Write the solution(s) of the equation in simplest form. Enter one solution in each response box. If there is only one solution, leave one response box blank.

- 6 The graph of a function $f(x) = 3x^2 - 5x - 7$ is a parabola.

Plot the points for the x -intercept(s), y -intercept(s), and maximum or minimum point to the nearest half unit, whichever one exists, on the coordinate grid provided.



- 7 A student followed the steps shown to solve the given equation.

Given: $9x^2 + 15 = 24$

Step 1: $9x^2 = 9$

Step 2: $x^2 = 81$

Step 3: $x = \pm 9$

Circle the first step where the student's error (if there is one) appears. Explain that error, then finish solving the problem correctly.