Exercises - Solving Quadratic Equations by Completing the Square

1

If $x^2 - 10x = 75$ and $x < 0$, what is the value of $x + 5$?

A) -15

B) -10

C) -5

D) 0

2

If $x^2 - kx = 20$ and $x - \dfrac{k}{2} = 6$, which of the following is a possible value of x?

A) 2

B) 4

C) 6

D) 8

3

$$x^2 - \frac{k}{3}x = 5$$

Which of the following is an equivalent form of the equation shown above, from which the equation could be solved by completing the square?

A) $x^2 - \dfrac{k}{3}x + \dfrac{k}{6} = \dfrac{k}{6} + 5$

B) $x^2 - \dfrac{k}{3}x + \dfrac{k^2}{9} = \dfrac{k^2}{9} + 5$

C) $x^2 - \dfrac{k}{3}x + \dfrac{k^2}{36} = \dfrac{k^2}{36} + 5$

D) $x^2 - \dfrac{k}{3}x + \dfrac{k^2}{6} = \dfrac{k^2}{6} + 5$

4

$$x^2 - rx = \frac{k^2}{4}$$

In the quadratic equation above, k and r are are constants. What are the solutions for x?

A) $x = \dfrac{r}{4} \pm \dfrac{\sqrt{k^2 + 2r^2}}{4}$

B) $x = \dfrac{r}{2} \pm \dfrac{\sqrt{k^2 + 8r^2}}{4}$

C) $x = \dfrac{r}{4} \pm \dfrac{\sqrt{k^2 + r^2}}{2}$

D) $x = \dfrac{r}{2} \pm \dfrac{\sqrt{k^2 + r^2}}{2}$

5

If $(x - 7)(x - s) = x^2 - rx + 14$ for all values of x, what is the value of $r + s$?

6

If $x^2 - \dfrac{3}{2}x + c = (x - k)^2$, what is the value of c?