

## Quadratic Review

Solve each equation by factoring.

1)  $b^2 - 11b + 24 = 0$

$(b-8)(b-3) = 0$

$b = 8, 3$

3)  $x^2 + 4x + 3 = 0$

$(x+1)(x+3) = 0$

$x = -1, -3$

5)  $x^2 - 10x + 24 = 0$

$(x-6)(x-4) = 0$

$x = 6, 4$

7)  $2m^2 - 11m + 15 = 0$

$2m^2 - 5m - 6m + 15$

$m(2m-5) - 3(2m-5)$

$(2m-5)(m-3) = 0$   $m = 3, \frac{5}{2}$

9)  $2p^2 + 13p - 7 = 0$  -14

$2p^2 + 14p - 1p - 7$

$2p(p+7) - 1(p+7)$

$(2p-1)(p+7) = 0$   $p = \frac{1}{2}, -7$

Solve each equation with the quadratic formula.

11)  $4v^2 - 3v - 10 = 0$

$$x = \frac{3 \pm \sqrt{(-3)^2 - 4(4)(-10)}}{2(4)} = \frac{3 \pm 13}{8}$$

$$= \frac{3 \pm \sqrt{169}}{8}$$

$$x = 2, -\frac{5}{4}$$

13)  $12r^2 + 4r - 2 = 0$   $6r^2 + 2r - 1 = 0$

$$x = \frac{-2 \pm \sqrt{(2)^2 - 4(6)(-1)}}{2(6)} = \frac{-2 \pm 2\sqrt{7}}{12}$$

$$= \frac{-2 \pm \sqrt{28}}{12}$$

$$x = \frac{-1 \pm \sqrt{7}}{6}$$

2)  $r^2 - 6r + 8 = 0$

$(r-2)(r-4) = 0$

$r = 2, 4$

4)  $a^2 - 2a + 1 = 0$

$(a-1)^2 = 0$

$a = 1$

6)  $x^2 + 2x - 3 = 0$

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

$x = -3, 1$

8)  $5k^2 + 11k - 12 = 0$  -60

$5k^2 + 15k - 4k - 12$

$5k(k+3) - 4(k+3)$

$(k+3)(5k-4) = 0$   $k = -3, \frac{4}{5}$

10)  $5x^2 - 26x + 24 = 0$  120

$5x^2 - 6x - 20x + 24$

$x(5x-6) - 4(5x-6)$

$(5x-6)(x-4) = 0$   $x = \frac{6}{5}, 4$

12)  $2r^2 + 2r - 12 = 0$   $r^2 + r - 6 = 0$

$$x = \frac{-1 \pm \sqrt{(1)^2 - 4(1)(-6)}}{2} = \frac{-1 \pm 5}{2}$$

$$= \frac{-1 \pm \sqrt{25}}{2}$$

$$x = 2, -3$$

14)  $2v^2 + 8v + 5 = 0$

$$x = \frac{-8 \pm \sqrt{(8)^2 - 4(2)(5)}}{2(2)} = \frac{-8 \pm 2\sqrt{6}}{4}$$

$$= \frac{-8 \pm \sqrt{24}}{4}$$

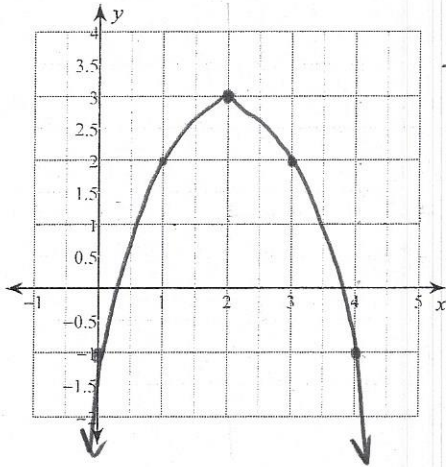
$$x = \frac{-4 \pm \sqrt{6}}{2}$$

Sketch the graph of each function.

15)  $y = -x^2 + 4x - 1$

$$x = \frac{-4}{2(-1)} = \frac{-4}{-2} = 2$$

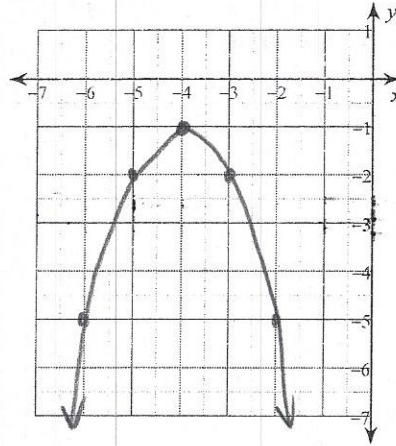
$$\begin{aligned} &-(2)^2 + 4(2) - 1 \\ &-4 + 8 - 1 = 3 \\ &(2, 3) \end{aligned}$$



16)  $y = -x^2 - 8x - 17$

$$x = \frac{8}{2(-1)} = \frac{8}{-2} = -4$$

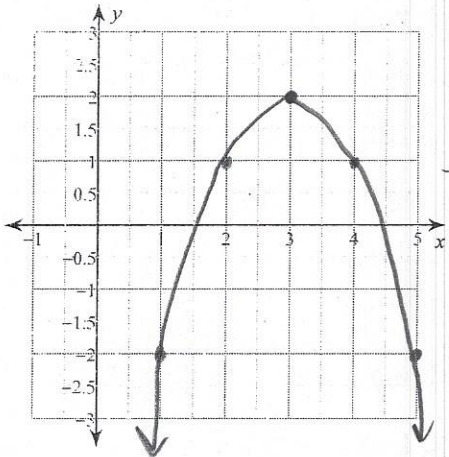
$$\begin{aligned} &-(-4)^2 - 8(-4) - 17 \\ &-16 + 32 - 17 = -1 \\ &(-4, -1) \end{aligned}$$



17)  $y = -x^2 + 6x - 7$

$$x = \frac{-6}{2(-1)} = \frac{-6}{-2} = 3$$

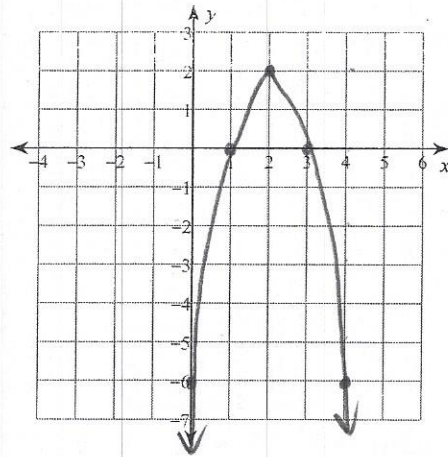
$$\begin{aligned} &-(-3)^2 + 6(3) - 7 \\ &-9 + 18 - 7 = 2 \\ &(3, 2) \end{aligned}$$



18)  $y = -2x^2 + 8x - 6$

$$x = \frac{-8}{2(-2)} = \frac{-8}{-4} = 2$$

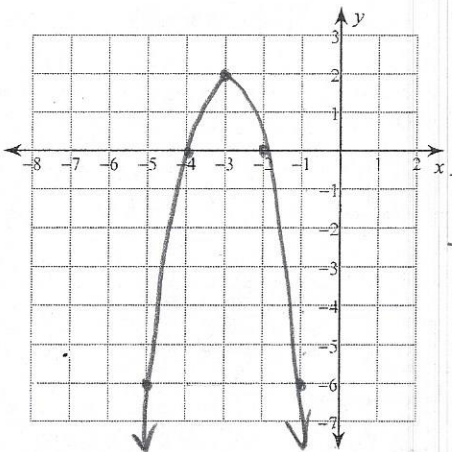
$$\begin{aligned} &-2(2)^2 + 8(2) - 6 \\ &-2(4) + 16 - 6 \\ &-8 + 16 - 6 = 2 \\ &(2, 2) \end{aligned}$$



19)  $y = -2x^2 - 12x - 16$

$$x = \frac{12}{2(-2)} = \frac{12}{-4} = -3$$

$$\begin{aligned} &-2(-3)^2 - 12(-3) - 16 \\ &-2(9) + 36 - 16 \\ &-18 + 36 - 16 = 2 \\ &(-3, 2) \end{aligned}$$



20)  $y = -x^2 - 2x - 4$

$$x = \frac{2}{2(-1)} = \frac{2}{-2} = -1$$

$$\begin{aligned} &-(-1)^2 - 2(-1) - 4 \\ &-1 + 2 - 4 = -3 \\ &(-1, -3) \end{aligned}$$

