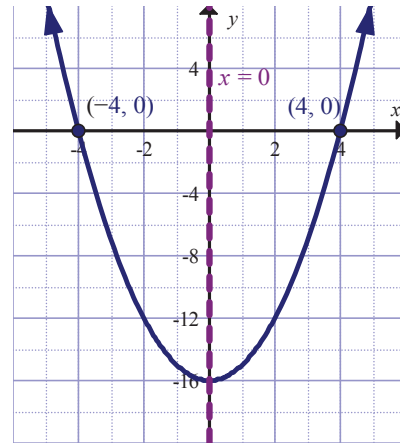


Section 4.1 Page 217 Question 17

For any point other than the vertex, there is a corresponding point that is equidistant from the axis of symmetry. For the axis of symmetry $x = 0$ and an x -intercept of -4 , the corresponding point for $(-4, 0)$ is $(4, 0)$, the other x -intercept.



Section 4.1 Page 217 Question 18

The x -coordinate of the vertex is halfway between the two roots of 6 and -2 . So, it is at 2. You can then substitute $x = 2$ into the equation to find that the y -coordinate of the vertex is -16 .

Section 4.2 Factoring Quadratic Equations

Section 4.2 Page 229 Question 1

- a) $x^2 + 7x + 10 = (x + 5)(x + 2)$
- b) $5z^2 + 40z + 60 = 5(z^2 + 8z + 12)$
 $= 5(z + 2)(z + 6)$
- c) $0.2d^2 - 2.2d + 5.6 = 0.2(d^2 - 11d + 28)$
 $= 0.2(d - 4)(d - 7)$

Section 4.2 Page 229 Question 2

- a) $3y^2 + 4y - 7 = (3y + 7)(y - 1)$
- b) $8k^2 - 6k - 5 = (2k + 1)(4k - 5)$
- c) $0.4m^2 + 0.6m - 1.8 = 0.2(2m^2 + 3m - 9)$
 $= 0.2(2m - 3)(m + 3)$

Section 4.2 Page 230 Question 3

a) $x^2 + x - 20 = (x + 5)(x - 4)$

b) $x^2 - 12x + 36 = (x - 6)(x - 6)$
 $= (x - 6)^2$

c) $\frac{1}{4}x^2 + 2x + 3 = \frac{1}{4}(x^2 + 8x + 12)$
 $= \frac{1}{4}(x + 2)(x + 6)$

d) $2x^2 + 12x + 18 = 2(x^2 + 6x + 9)$
 $= 2(x + 3)(x + 3)$
 $= 2(x + 3)^2$

Section 4.2 Page 230 Question 4

a) $4y^2 - 9x^2 = (2y - 3x)(2y + 3x)$

b) $0.36p^2 - 0.49q^2 = (0.6p - 0.7q)(0.6p + 0.7q)$

c) $\frac{1}{4}s^2 - \frac{9}{25}t^2 = \left(\frac{1}{2}s - \frac{3}{5}t\right)\left(\frac{1}{2}s + \frac{3}{5}t\right)$

d) $0.16t^2 - 16s^2 = (0.4t - 4s)(0.4t + 4s)$

Section 4.2 Page 230 Question 5

a) Let $r = x + 2$.

$$(x + 2)^2 - (x + 2) - 42$$
$$= r^2 - r - 42$$
$$= (r - 7)(r + 6)$$
$$= (x + 2 - 7)(x + 2 + 6)$$
$$= (x - 5)(x + 8)$$

b) Let $r = x^2 - 4x + 4$.

$$6(x^2 - 4x + 4)^2 + (x^2 - 4x + 4) - 1$$
$$= 6r^2 + r - 1$$
$$= (3r - 1)(2r + 1)$$
$$= (3(x^2 - 4x + 4) - 1)(2(x^2 - 4x + 4) + 1)$$
$$= (3x^2 - 12x + 12 - 1)(2x^2 - 8x + 8 + 1)$$
$$= (3x^2 - 12x + 11)(2x^2 - 8x + 9)$$

c) Use the pattern for factoring a difference of squares.

$$(4j - 2)^2 - (2 + 4j)^2$$
$$= [(4j - 2) - (2 + 4j)][(4j - 2) + (2 + 4j)]$$
$$= (4j - 2 - 2 - 4j)(4j - 2 + 2 + 4j)$$
$$= (-4)(8j)$$