



Finding Equations of Quadratic Relations in Factored Form: $y = a(x - r)(x - s)$

Video Notes

[Video Link](#)

Finding Equations of Quadratic Relations in Factored Form: $y = a(x - r)(x - s)$

Background Information:

- Quadratic Relations in Factored Form

r and s are roots

Find the equation of the quadratic relation below in factored form.

- Identify the roots and use that information in factored form.

Factored form: $y = a(x - r)(x - s)$

Roots: $\{-4, 1\}$

$$y = a(x - (-4))(x - 1)$$

$$y = a(x + 4)(x - 1)$$

- Use another coordinate to solve for a .

$$y = a(x + 4)(x - 1)$$

Point given: $(0, -12)$
x y

$$-12 = a(0 + 4)(0 - 1)$$

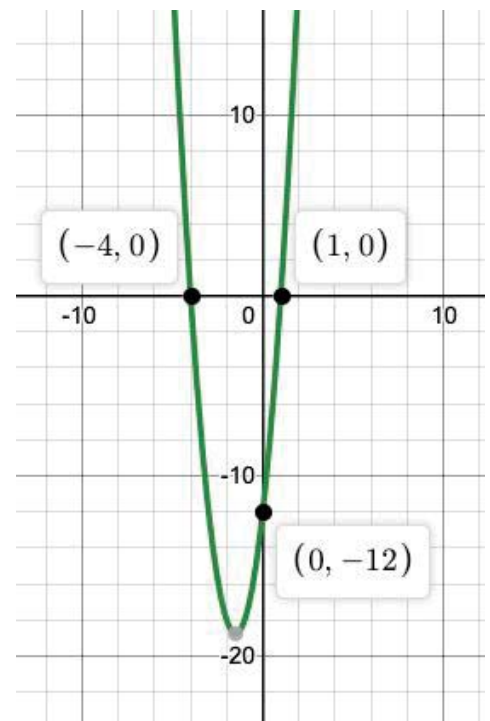
$$-12 = a(4)(-1)$$

$$-12 = -4a$$

$$3 = a$$

$$y = 3(x + 4)(x - 1)$$

Final answer



Find the equation of the quadratic relation below in factored form.

Factored Form:

$$y = a(x - r)(x - s)$$

Roots: $\{-4, 7\}$

$$y = a(x - (-4))(x - 7)$$

$$y = a(x + 4)(x - 7)$$

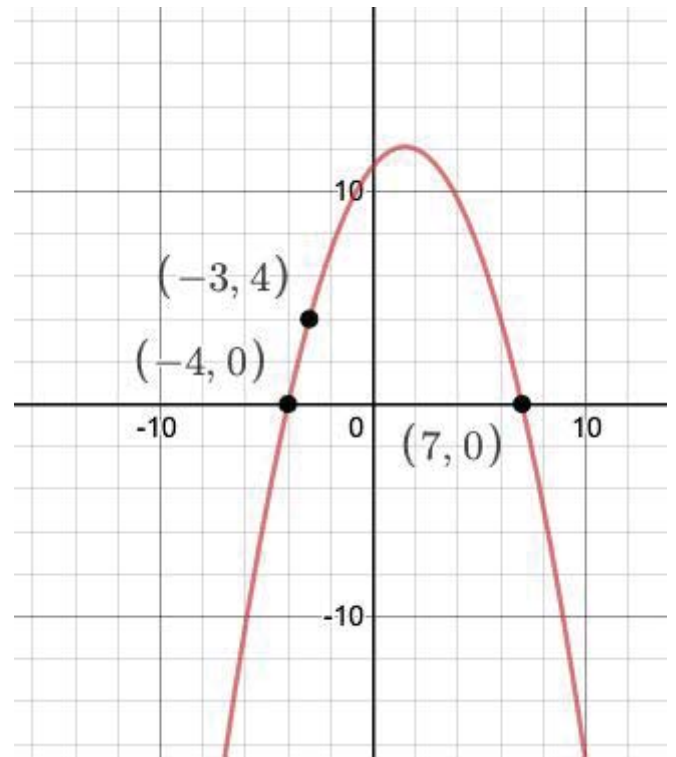
Point given: $(-3, 4)$

$$4 = a(-3 + 4)(-3 - 7)$$

$$4 = a(1)(-10)$$

$$4 = -10a$$

$$-\frac{4}{10} = a$$



$$a = \frac{-4 \div 1}{-10 \div 1} = \frac{-4}{-10} = \frac{2}{5}$$
$$y = \frac{2}{5}(x + 4)(x - 7)$$

Final answer

Find the equation of the quadratic relation below in factored form.

Factored form:

$$y = a(x - r)(x - s)$$

Roots: $\{-2, 0\}$

$$y = a(x - (-2))(x - 0)$$

$$y = a(x + 2)x$$

$$y = ax(x + 2)$$

Point given: $(-1, -3)$

$$-3 = a(-1)(-1 + 2)$$

$$-3 = -a$$

$$3 = a$$

$$a = 3$$

$$y = 3x(x + 2)$$

Final answer

