

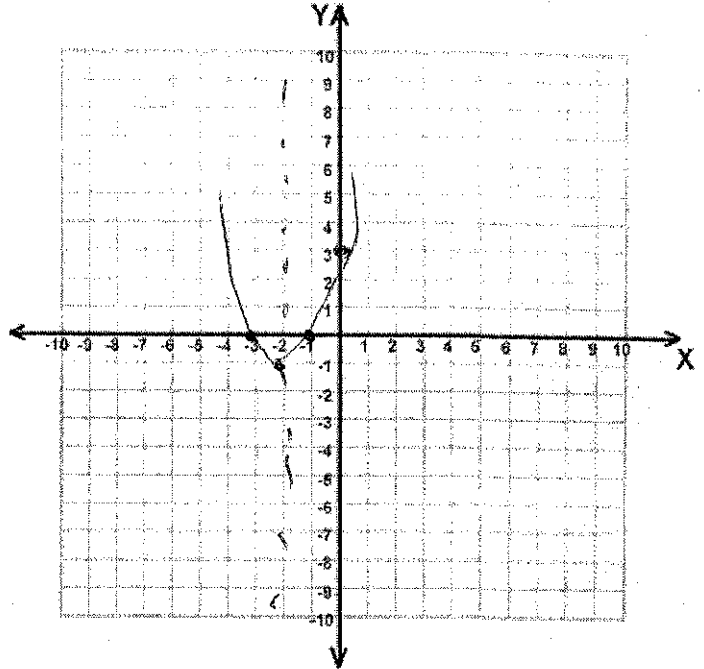
Graph

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

Find your x-intercepts

(when $y=0$)

$$\begin{array}{l} x+1=0 \quad x+3=0 \\ -1 \quad \quad -3 \end{array}$$



Find your y-intercept

(when $x=0$)

$$\begin{array}{l} y = (0+1)(0+3) \\ y = 3 \end{array}$$

Find your line of symmetry:

(midway point since parabolas are symmetrical)

Add both intercepts and divide by 2 to find middle

$$\frac{-1 + -3}{2} = \frac{-4}{2} = -2$$

Find your vertex point:

(Substitute x in from line of symmetry)

$$\begin{array}{l} y = (-2+1)(-2+3) \\ -1 \cdot 1 \\ y = -1 \end{array}$$

$$(-2, -1)$$

Graph

$$y = (x - 5)(x - 3)$$

Find your x-intercepts

(when $y = 0$)

$$\begin{array}{l} x - 5 = 0 \\ x = 5 \end{array} \quad \begin{array}{l} x - 3 = 0 \\ x = 3 \end{array}$$

Find your y-intercept

(when $x = 0$)

$$\begin{array}{l} y = (0 - 5)(0 - 3) \\ y = -5 \cdot -3 \\ y = 15 \end{array}$$

Find your line of symmetry:

(midway point since parabolas are symmetrical)

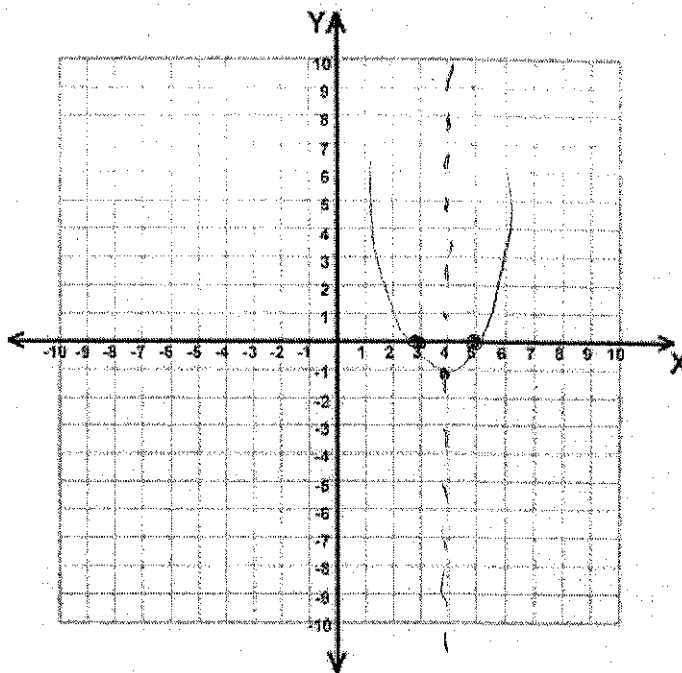
Add both intercepts and divide by 2 to find middle

$$\frac{5 + 3}{2} = \frac{8}{2} = 4$$

Find your vertex point:

(Substitute x in from line of symmetry)

$$\begin{array}{l} y = (4 - 5)(4 - 3) \\ -1 \cdot 1 \\ y = -1 \end{array} \quad (4, -1)$$



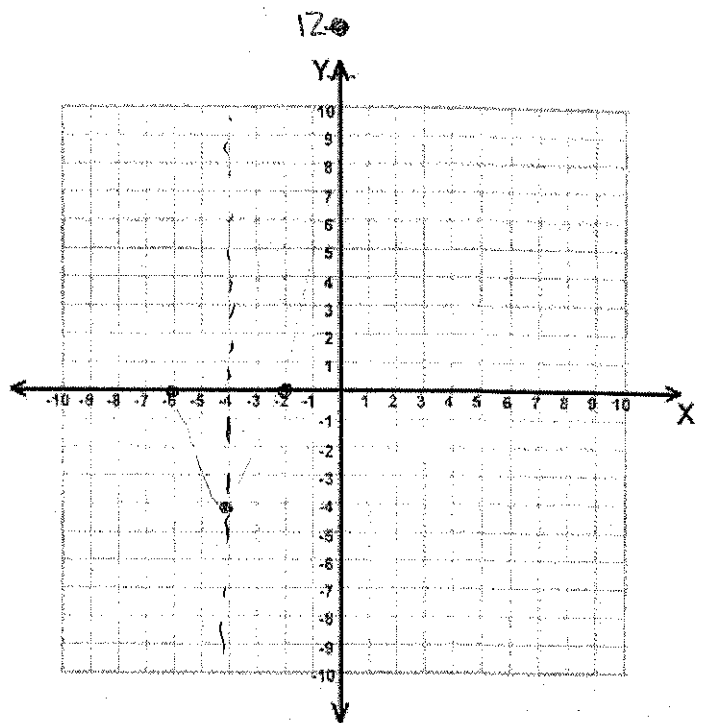
Graph

$$y = (x + 2)(x + 6)$$

Find your x-intercepts

(when $y=0$)

$$\begin{array}{l} x + 2 = 0 \\ x = -2 \end{array} \quad \begin{array}{l} x + 6 = 0 \\ x = -6 \end{array}$$



Find your y-intercept

(when $x=0$)

$$\begin{aligned} y &= (0+2)(0+6) \\ y &= 2 \cdot 6 \\ y &= 12 \end{aligned}$$

Find your line of symmetry:

(midway point since parabolas are symmetrical)

Add both intercepts and divide by 2 to find middle

$$\frac{-2 + 6}{2} = \frac{-8}{2} = -4$$

Find your vertex point:

(Substitute x in from line of symmetry)

$$\begin{aligned} y &= (-4+2)(-4+6) && (-4, -4) \\ &= -2 \cdot +2 \\ &= -4 \end{aligned}$$

Graph

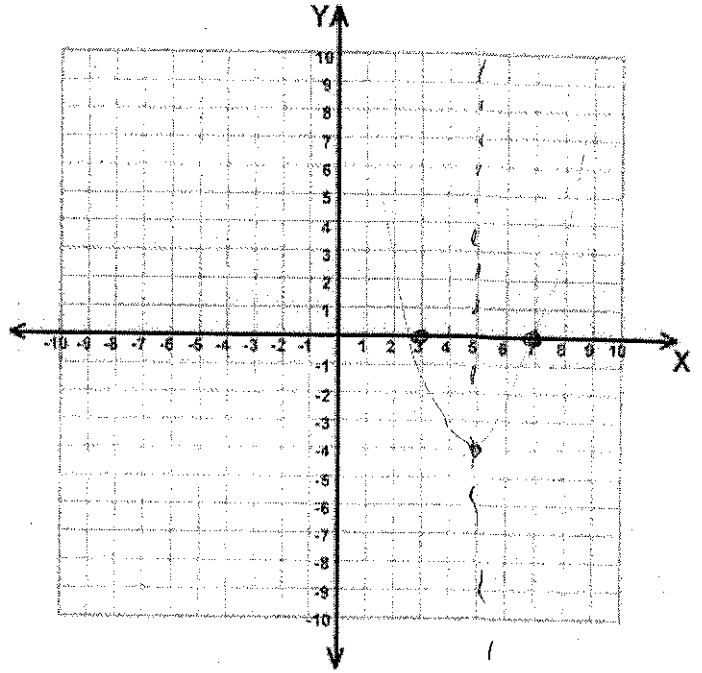
$$y = (x - 3)(x - 7)$$

Find your x-intercepts

(when $y=0$)

$$x - 3 = 0 \quad x - 7 = 0$$

$$x = 3 \quad x = 7$$



Find your y-intercept

(when $x=0$)

$$y = (0 - 3)(0 - 7)$$

$$y = 21$$

Find your line of symmetry:

(midway point since parabolas are symmetrical)

Add both intercepts and divide by 2 to find middle

$$\frac{3 + 7}{2} = \frac{10}{2} = 5$$

Find your vertex point:

(Substitute x in from line of symmetry)

$$y = (5 - 3)(5 - 7) \quad (5, -4)$$

$$2 \cdot -2$$

$$y = -4$$

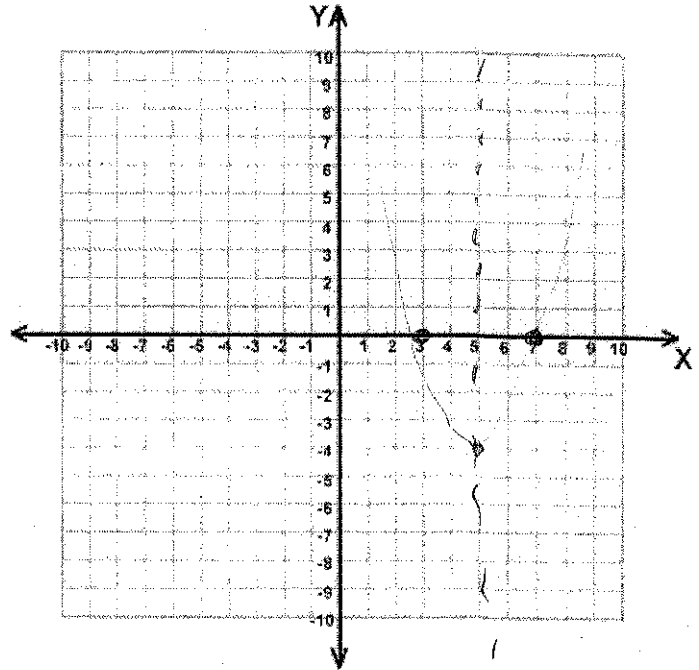
Graph

$$y = (x - 3)(x - 7)$$

Find your x-intercepts

(when $y=0$)

$$\begin{aligned} x - 3 &= 0 & x - 7 &= 0 \\ x &= 3 & x &= 7 \end{aligned}$$



Find your y-intercept

(when $x=0$)

$$\begin{aligned} y &= (0-3)(0-7) \\ y &= 21 \end{aligned}$$

Find your line of symmetry:

(midway point since parabolas are symmetrical)

Add both intercepts and divide by 2 to find middle

$$\frac{3+7}{2} = \frac{10}{2} = 5$$

Find your vertex point:

(Substitute x in from line of symmetry)

$$\begin{aligned} y &= (5-3)(5-7) & (5, -4) \\ &= 2 \cdot -2 \\ &= -4 \end{aligned}$$