

Parabola

Questions are given in the forms: $y = ax^2 + bx + c$ or $4c(y - q) = (x - p)^2$
 $x = ay^2 + bx + c$ or $4c(x - p) = (y - q)^2$

$$1. \quad \begin{aligned} y &= 2x^2 - 16x + 30 \\ \frac{1}{2}(y + 2) &= (x - 4)^2 \end{aligned}$$

$$2. \quad \begin{aligned} y &= \frac{1}{4}x^2 + \frac{6}{4}x + \frac{17}{4} \\ 4(y - 2) &= (x + 3)^2 \end{aligned}$$

$$3. \quad \begin{aligned} y &= -8x^2 + 32x - 33 \\ \frac{-1}{8}(y + 1) &= (x - 2)^2 \end{aligned}$$

$$4. \quad \begin{aligned} y &= -6x^2 + 48x - 93 \\ \frac{-1}{6}(y - 3) &= (x - 4)^2 \end{aligned}$$

$$5. \quad \begin{aligned} x &= \frac{-1}{4}y^2 + y - 2 \\ -4(x + 1) &= (y - 2)^2 \end{aligned}$$

$$6. \quad \begin{aligned} x &= \frac{-1}{8}y^2 + \frac{10}{8}y - \frac{49}{8} \\ -8(x + 3) &= (y - 5)^2 \end{aligned}$$

$$7. \quad \begin{aligned} x &= 12y^2 - 48y + 47 \\ \frac{1}{12}(x + 1) &= (y - 2)^2 \end{aligned}$$

$$8. \quad \begin{aligned} x &= 16y^2 + 128y + 259 \\ \frac{1}{16}(x - 3) &= (y + 4)^2 \end{aligned}$$

Note: some of these questions can be used to practice completing the trinomial square since the second part of each question is the result of completing the trinomial square.