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. $y = 2x^2 - 16x + 30$

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

2. $y = \frac{1}{4}x^2 + \frac{6}{4}x + \frac{17}{4}$

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

3. $y = -8x^2 + 32x - 33$

   $\frac{-1}{8}(y + 1) = (x - 2)^2$

4. $y = -6x^2 + 48x - 93$

   $\frac{-1}{6}(y - 3) = (x - 4)^2$

5. $x = \frac{-1}{4}y^2 + y - 2$

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

6. $x = \frac{-1}{8}y^2 + \frac{10}{8}y - \frac{49}{8}$

   $-8(x + 3) = (y - 5)^2$

7. $x = 12y^2 - 48y + 47$

   $\frac{1}{12}(x + 1) = (y - 2)^2$

8. $x = 16y^2 + 128y + 259$

   $\frac{1}{16}(x - 3) = (y + 4)^2$

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.