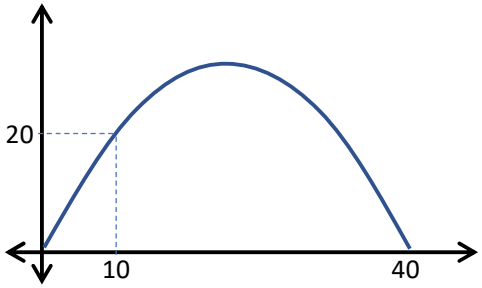
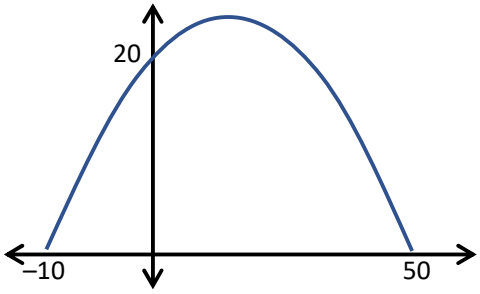
Harder Parabola Equations #3

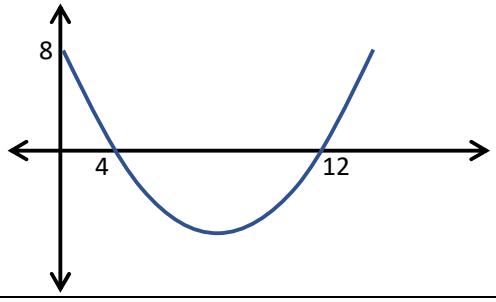
1. Give the turning point



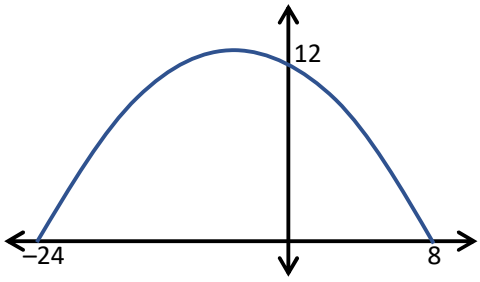
2. Give the turning point



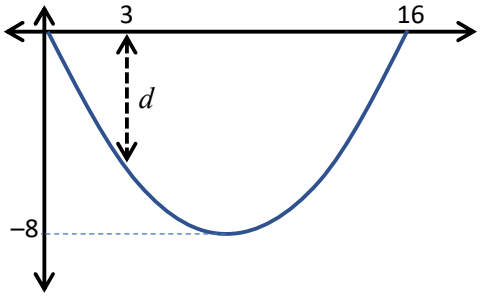
3. Give the turning point



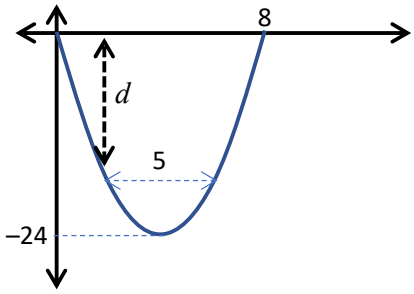
4. Give the turning point



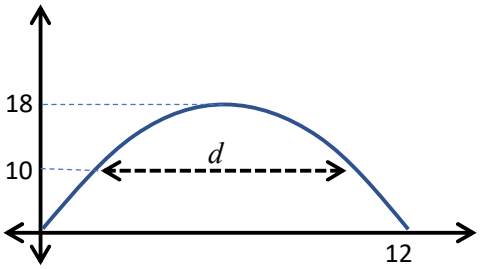
5. Give the distance d



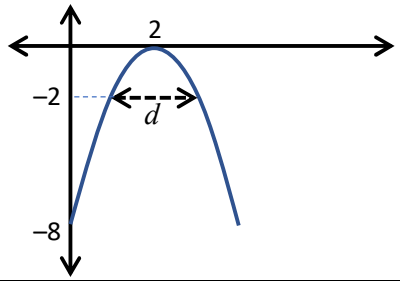
6. Give the distance d



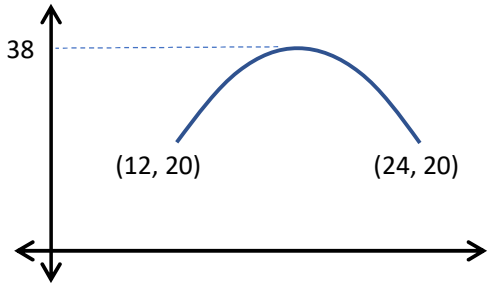
7. Give the distance d



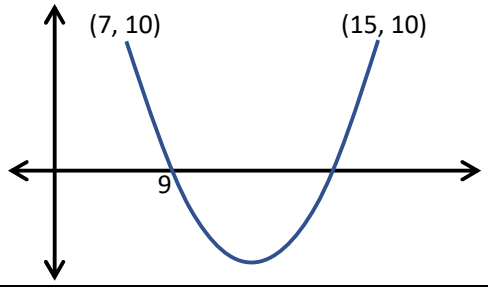
8. Give the distance d



9. Give the equation for the parabola



10. Give the equation for the parabola



Harder Parabola Equations #3 – Answers

1. $y = m\,x\,(x - 40)$ $\quad 20 = m \times 10\,(10 - 40)$ $\quad m = \frac{20}{-300} = \frac{-2}{15}$

   turns at (20, 26.667)

2. $y = m\,(x + 10)(x - 50)$ $\quad 20 = m \times (0 + 10)(0 - 50)$ $\quad m = \frac{20}{-500} = -0.04$

   turns at (20, 36)

3. $y = m\,(x - 4)(x - 12)$ $\quad 8 = m \times (0 - 4)(0 - 12)$ $\quad m = \frac{8}{48} = \frac{1}{6}$

   turns at (8, –2.667)

4 $y = m\,(x + 24)(x - 8)$ $\quad 12 = m \times (0 + 24)(0 - 8)$ $\quad m = \frac{-12}{192} = -0.0625$

   turns at (–8, 16)

5. $m = \frac{-8}{-64}$ $\quad y = 0.125\,x\,(x - 16)$ $\quad$ or $\quad y = 0.125\,(x - 8)^2 - 8$

   putting $x = 3$ into either equation, $d = -4.875$

6. $m = \frac{-24}{-16}$ $\quad y = 1.5\,x\,(x - 8)$ $\quad$ or $\quad y = 1.5\,(x - 4)^2 - 24$

   Middle 5, means from $x = 1.5$ to 6.5, putting in $x = 1.5$ gives $d = -14.625$

7. $m = \frac{18}{-36}$ $\quad y = -0.5\,x\,(x - 12)$ $\quad y = -0.5\,(x - 6)^2 + 18$

   Solving $10 = -0.5\,x\,(x - 12)$ gives $x = 2$ and 10, so $d = 8$

8. $m = \frac{-8}{4}$ $\quad y = -2\,(x - 2)^2$

   Solving for $-2 = -2\,(x - 2)^2$ gives $x = 1$ and 3, $\quad$ so $d = 2$

9. $y = m\,(x - 12)(x - 24)$ moved up 20 $\quad y = -0.5\,(x - 12)(x - 24) + 20$

   $y = m\,(x - 18)^2 + 38$ $\quad y = -0.5\,(x - 18)^2 + 38$

10. $y = m\,(x - 7)(x - 15)$ moved up 10 $\quad$ (9, 0) $\quad y = \frac{5}{6}\,(x - 7)(x - 15) + 9$

    $y = m\,(x - 9)(x - 13)$ $\quad$ (7, 10) $\quad y = \frac{5}{6}\,(x - 9)(x - 13)$