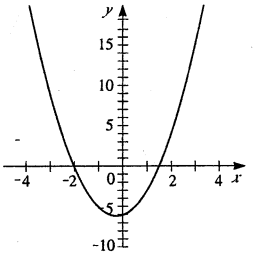
12. $y = 2x^2 + x - 6$

Vertex: $y = 2x^2 + x - 6 = 2(x^2 + \frac{1}{2}x) - 6 =$
$2(x^2 + \frac{1}{2}x + \frac{1}{16}) - 6 - \frac{1}{8} = 2(x + \frac{1}{4})^2 - \frac{49}{8}$. Vertex is at $(-\frac{1}{4}, -\frac{49}{8})$.

x-intercept: $y = 0 \quad \Rightarrow \quad 0 = 2x^2 + x - 6 = (2x - 3)(x + 2) \quad \Rightarrow$
$x = \frac{3}{2}$ or $x = -2$. The x-intercepts are at $x = \frac{3}{2}$ and at $x = -2$.

y-intercept: $x = 0 \quad \Rightarrow \quad y = -6$. The y-intercept is at $y = -6$.



14. $y = 6x^2 + 12x - 5$

Vertex: $y = 6x^2 + 12x - 5 = 6(x^2 + 2x) - 5$
$= 6(x^2 + 2x + 1) - 5 - 6 = 6(x + 1)^2 - 11$. Vertex is at $(-1, -11)$.

x-intercept: $y = 0 \quad \Rightarrow \quad 0 = 6x^2 + 12x - 5$. Using the quadratic formula, $x = \frac{-12 \pm \sqrt{(12)^2 - 4(6)(-5)}}{2(6)} = \frac{-12 \pm \sqrt{264}}{12} = \frac{-12 \pm 2\sqrt{66}}{12} = \frac{2(-6 \pm \sqrt{2})}{12}$
$= \frac{-6 \pm \sqrt{2}}{6}$. The x-intercepts are at $x = \frac{-6 - \sqrt{2}}{6}$ and at $x = \frac{-6 + \sqrt{2}}{6}$.

y-intercept: $x = 0 \quad \Rightarrow \quad y = -6$. The y-intercept is at $y = 0$.