

⑦  $y = 2x^2 + 3$

$x = \frac{-b}{2a}$

$x = \frac{-0}{2(2)}$

$x = 0$

$y = 2(0)^2 + 3$   
 $y = 3$

vertex: (0, 3)

⑧  $y = -3x^2 + 12x + 1$

$x = \frac{-b}{2a}$

$x = \frac{-12}{2(-3)}$

$x = 2$

$y = -3(2) + 12(2) + 1$   
 $y = -6 + 24 + 1$   
 $y = 19$

vertex (2, 19)

⑨  $f(x) = 2x^2 + 4x - 1$

$x = \frac{-b}{2a}$

$x = \frac{-4}{2(2)}$

$x = -1$

$y = 2(-1)^2 + 4(-1) - 1$   
 $y = 2 - 4 - 1$   
 $y = -3$

vertex (-1, -3)

⑩  $y = x^2 - 8x - 7$

$x = \frac{-b}{2a}$

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

$x = 4$

$y = 4^2 - 8(4) - 7$   
 $y = 16 - 32 - 7$   
 $y = -23$

vertex (4, -23)

$$\textcircled{11} \quad f(x) = 3x^2 - 9x + 2$$

$$x = \frac{-b}{2a}$$

$$x = \frac{-(-9)}{2(3)}$$

$$x = \frac{9}{6}$$

$$x = \frac{3}{2}$$

$$y = 3\left(\frac{3}{2}\right)^2 - 9\left(\frac{3}{2}\right) + 2$$

$$y = 3\left(\frac{9}{4}\right) - \frac{27}{2} + 2$$

$$y = \frac{27}{4} - \frac{54}{4} + \frac{8}{4}$$

$$y = \frac{-19}{4}$$

$$\text{Vertex } \left(\frac{3}{2}, -\frac{19}{4}\right)$$

$$\textcircled{12} \quad y = -4x^2 + 11$$

$$x = \frac{-b}{2a}$$

$$x = \frac{0}{2(-4)}$$

$$x = 0$$

$$y = -4(0)^2 + 11$$

$$y = 11$$

$$\text{Vertex } (0, 11)$$

$$\textcircled{13} \quad f(x) = -5x^2 + 3x + 2$$

$$x = \frac{-b}{2a}$$

$$x = \frac{-3}{2(-5)}$$

$$x = \frac{3}{10}$$

$$y = -5\left(\frac{3}{10}\right)^2 + 3\left(\frac{3}{10}\right) + 2$$

$$y = -5\left(\frac{9}{100}\right) + \frac{9}{10} + 2$$

$$y = -\frac{45}{100} + \frac{90}{100} + 2$$

$$y = 2\frac{45}{100}$$

$$\text{Vertex } \left(\frac{3}{10}, 2\frac{45}{100}\right)$$

$$\textcircled{14} \quad y = -4x^2 - 16x - 3$$

$$x = \frac{-b}{2a}$$

$$x = \frac{-(-16)}{2(-4)}$$

$$x = -2$$

$$y = -4(-2)^2 - 16(-2) - 3$$

$$y = -16 + 32 - 3$$

$$y = 13$$

$$\text{Vertex } (-2, 13)$$

15)  $f(x) = 6x^2 + 6x - 5$

$x = \frac{-b}{2a}$       $y = 6(-\frac{1}{2})^2 + 6(-\frac{1}{2}) - 5$

$x = \frac{-6}{2(6)}$       $y = 6(\frac{1}{2}) - 3 - 5$

$x = -\frac{1}{2}$       $y = -6\frac{1}{2}$

vertex  $(-\frac{1}{2}, -6\frac{1}{2})$

16) C

17) B

18) D

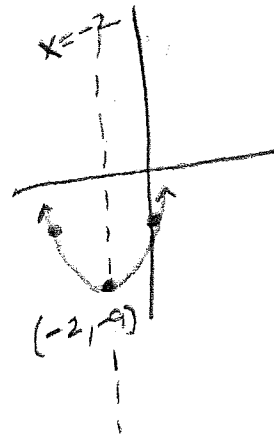
19) A

20)  $f(x) = x^2 + 4x - 5$

$x = \frac{-b}{2a}$       $y = (-2)^2 + 4(-2) - 5$

$x = \frac{-4}{2(1)}$       $y = 4 - 8 - 5$

$x = -2$       $y = -9$   
 vertex  $(-2, -9)$   
 y-int  $-5$



21)  $y = 3x^2 - 20x$

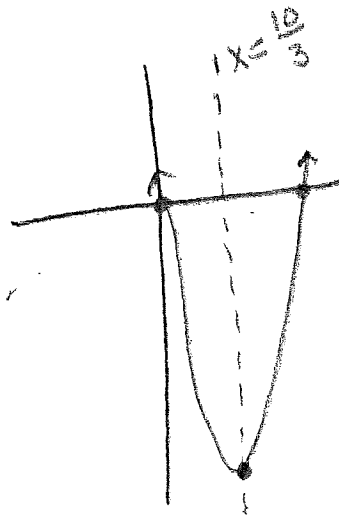
$x = \frac{-b}{2a}$       $y = 3(\frac{10}{3})^2 - 20(\frac{10}{3})$

$x = \frac{-(-20)}{2(3)}$       $y = \frac{300}{9} - \frac{200}{3}$

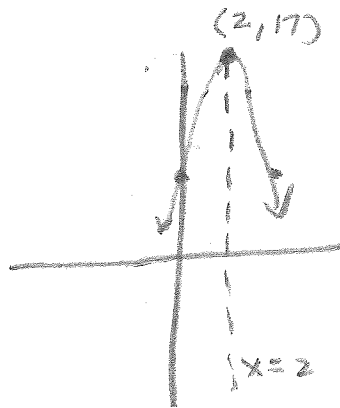
$x = \frac{10}{3}$       $y = \frac{300}{9} - \frac{600}{9}$   
 $y = \frac{-300}{9} = -\frac{100}{3}$

vertex  $(\frac{10}{3}, -\frac{100}{3})$

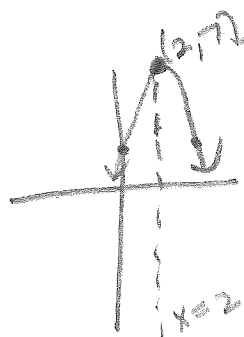
y-int 0



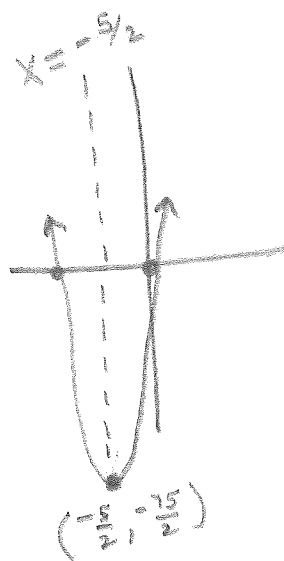
22)  $y = -2x^2 + 8x + 9$   
 $x = \frac{-b}{2a} = \frac{-8}{2(-2)}$   
 $y = -2(2)^2 + 8(2) + 9$   
 $y = -8 + 16 + 9$   
 $y = 17$   
 Vertex  $(2, 17)$   
 y-int: 9



23)  $f(x) = -x^2 + 4x + 3$   
 $x = \frac{-b}{2a} = \frac{-4}{2(-1)}$   
 $y = -(2)^2 + 4(2) + 3$   
 $y = -4 + 8 + 3$   
 $y = 7$   
 Vertex  $(2, 7)$   
 y-int: 3



24)  $y = -2x^2 - 10x$   
 $x = \frac{-b}{2a} = \frac{-(-10)}{2(-2)}$   
 $y = -2(\frac{-5}{2})^2 - 10(\frac{-5}{2})$   
 $y = -2(\frac{25}{4}) - \frac{50}{2}$   
 $y = -\frac{50}{4} - \frac{100}{4}$   
 $y = \frac{-150}{4} = -\frac{75}{2}$   
 Vertex  $(-\frac{5}{2}, -\frac{75}{2})$   
 y-int: 0



25)  $y = 2x^2 - 6x + 1$   
 $x = \frac{-b}{2a} = \frac{-(-6)}{2(2)}$   
 $y = 2(\frac{3}{2})^2 - 6(\frac{3}{2}) + 1$   
 $y = \frac{18}{4} - 9 + 1$   
 $y = 4\frac{1}{2} - 9 + 1$   
 $y = -3\frac{1}{2}$   
 Vertex  $(\frac{3}{2}, -3\frac{1}{2})$   
 y-int: 1

