2.2 - p.76-78 #'s 4, 5, 7, 23, 25, 29

5.) Find a so that the point $(-1, 2)$ is on the graph of $f(x) = ax^2 + 4$

$2 = a(-1)^2 + 4 \rightarrow 2 = a + 4 \rightarrow \boxed{-2 = a}$

4.) $f(5) = -3 \rightarrow x = 5, \; y = -3$

7.) False b/c $f(x)$ could be $f(x) = \sqrt{x-3}$, which does not cross y-axis

23.) $f(x) = 2x^2 - x - 1$

c.) If $f(x) = -1$, what is x? What pts. are on the graph of f?

$-1 = 2x^2 - x - 1 \rightarrow -1 + 1 = 2x^2 - x$

$0 = x(2x - 1)$

$\boxed{x = 0, \; \frac{1}{2}}$

Points

$(0, -1)$ AND $(\frac{1}{2}, -1)$

d.) Domain of f? $(-\infty, \infty)$ or All Real #'s

Same thing

25.) $f(x) = \dfrac{x+2}{x-6}$

c.) If $f(x) = 2$, what is x? What pts. are on the graph of f?

$(x-6)\, 2 = \dfrac{x+2}{x-6}(x-6)$

$2x - 12 = x + 2$

$2x - x = 2 + 12$

$\boxed{x = 14}$

pts on graph

$(14, 2)$

25 e.) x-intercepts? plug '0' in for y & solve

$(x-6)\,0 = \frac{x+2}{x-6}(x-6)$

$0 = x+2 \rightarrow x = -2$

x-int → (-2, 0)

d.) Domain of $f(x) = \frac{x+2}{x-6}$?

$D: \{x \mid x \neq 6\}$

$x-6=0$

$x=6$

29.) $h(x) = \frac{-32x^2}{130^2} + x$

d.) $0 = \frac{-32x^2}{130^2} + x$ → graph & find zero

$x = 528.13$ Ft

a.) $h(100) = \frac{-32(100)^2}{130^2} + (100) =$ 81.07 Ft

h.) 264 Ft

b.) $h(300) = \frac{-32(300)^2}{130^2} + (300) =$ 129.59 Ft

c.) $h(500) = \frac{-32(500)^2}{130^2} + (500) =$ 26.63 Ft

e.) graph h(x) on calc

Xmin 0	Ymin 0
Xmax 800	Ymax 300
Xscl 100	Yscl 50

f.) The height of the graph at x = 90 is 115.07 Ft & 413.05 Ft

g.) 275 Ft b/c we can only determine dist traveled (x-value) by going by 25's