Sec 1.2 page 35 (2-4, 8, 11, 15, 17-19)

(2) a) exponential b) power function

c) $2x^2 - x^5$ ∴ polynomial of degree 5

d) trig function e) rational function

f) algebraic (involves polys and roots)

(3) a) h b) f c) g

(4) a) G b) f c) F d) g

(8) a) $y = a(x-h)^2 + k \Rightarrow y = a(x-3)^2 + 0$

we have point $(4,2) \Rightarrow 2 = a(4-3)^2 \therefore a = 2$.

The equation would be $\boxed{y = 2(x-3)^2}$

b) $y = ax^2 + bx + c \Rightarrow$ pts $(-2,2), (0,1), (1,-2.5)$

$2 = 4a - 2b + c \quad 1 = c \quad -2.5 = a + b + c$

$2 = 4a - 2b + 1 \qquad -2.5 = a + b + 1$

$1 = 4a - 2b \qquad -3.5 = a + b$

$\Rightarrow 1 = 4a - 2b$

$-7 = 2a + 2b$

$-6 = 6a \Rightarrow a = -1, b = -2.5$

$\boxed{\therefore y = -x^2 - 2.5x + 1}$

(11) a) $C = 0.0417(200)(a+1)$

$C = 8.34a + 8.34$

$\therefore m = 8.34$ (it represents the change in mg of the dosage for a child for each year in age)

b) $C = 8.34(0) + 8.34$

$C = 8.34 \text{ mg}$

(15) (113, 70) and (173, 80)

a) $m = \frac{80-70}{173-113} = \frac{1}{6} \Rightarrow y - 80 = \frac{1}{6}(x - 173)$

or $y = \frac{1}{6}x + \frac{307}{6}$

b) $m = \frac{1}{6}$ (it represents the change in chirps depending on temps. Each 1° has a change of 6 chirps.)

c) $y = \frac{1}{6}(150) + \frac{307}{6} = 76.16\overline{6}\,^\circ F \approx 76\,^\circ F$

(17) a) $P = .434d + 15$

b) $100 = .434d + 15$

$85 = .434d$

$195.85 = d \quad \therefore \approx 195.85$ feet below

(18) a) We want to make a cost function $\Rightarrow y = C$

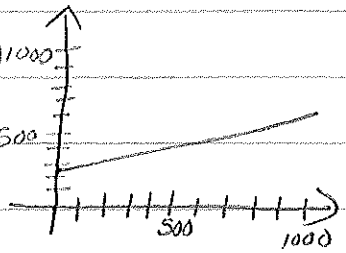
two points (480, #380) and (800, #460)

$m = \frac{460 - 380}{800 - 480} = \frac{1}{4}$ $\therefore C - 460 = \frac{1}{4}d - 200$

or $\boxed{C = \frac{1}{4}d + 260.}$

b) $C = \frac{1}{4}(1500) + 260 = \boxed{\#635}$

c)



m represents cost / mile or #.25

d) C-intercept = #250 $\Rightarrow$ fixed cost

e) b/c we have fixed costs like insurance etc but have to pay for gas based on how many miles we go.

(19) a) a sine or cosine graph seems appropriate

b) a linear graph seems appropriate