

PC - CH 2 REVIEW

P. 146 1-4, 5b, 6, 8-10, 12-15, 18-32, 35, 36, 43-46, 51-54

① a)  $f(1) = 4^1 = \boxed{4}$     b)  $f(-1) = 4^{-1} = \boxed{1/4}$     c)  $\frac{f(4)}{f(3)} = \frac{4^4}{4^3} = \boxed{64}$

② a)  $f(2) + f(-2) = 0 \rightarrow \boxed{\text{FALSE}}$   
 $4^2 + 4^{-2} = 16 + 1/16 \neq 0$

b)  $f(2) \cdot f(3) = f(5) \rightarrow \boxed{\text{TRUE}}$   
 $4^2 \cdot 4^3 = 4^5$   
 $16 \cdot 64 = 1024$   
 $1024 = 1024$

③ a)  $3 = x^3 + 2$   
 $-2 \quad -2$   
 $(1)^3 = (x^3)^{1/3} \quad \boxed{x=1}$

b)  $4^3 + 2 - (2^3 + 2) \quad \boxed{150}$   
 $64 + 2 - 10 = 56 \neq 2^3 + 2$   
 $56 \neq 10$

④  $5(n+1) - 2 - (5n - 2)$   
 $5n + 5 - 2 - 5n + 2 = \boxed{5}$

5b)  $R = \text{obs} - \text{pred}$   
 $= 987 - 49.93$   
 $= \boxed{937.07}$

$F(14) = 3.25(14) - 8.47$   
 $= 49.93$

⑥  $F(14) = 6.4935(1.594)^{14}$   
 $= 857.24$

$R = \text{obs} - \text{pred}$   
 $= 987 - 857.24$   
 $= \boxed{129.76}$

- ⑧ D:  $\{x | x \in \mathbb{R}\}$     R:  $\{y | y \leq 2.5\}$
- ⑨ D:  $\{x | x \in \mathbb{R}\}$     R:  $\{y | y > 0\}$
- ⑩ D:  $\{x | x \neq 0\}$     R:  $\{y | y \neq 0\}$
- ⑫ I:  $x$ , D:  $P$     ⑬ I:  $t$ , D:  $y$
- ⑭ D:  $\{n | 0 \leq n \leq 10\}$     R:  $\{y | 0 \leq y \leq 22\}$

- ⑮ True    ⑰ B    ⑱  $r=1$     ⑳  $r=-0.775$

⑳ Most of observed data fall close to linear model with a positive slope, strong positive relationship.

- ㉑ a)  $0 < b < 1$     b)  $b > 1$
- ㉒ a  $\rightarrow$  growth    b  $\rightarrow$  decay

24) Leading coefficient "a" is 5, which is positive and makes parabola open up.  $\uparrow$   
 $\uparrow$   
minimum

25) a) I, III      b) II, IV

26) a) I, II      b) III, IV

27)  $f(x)$  decreases

28)  $g(x)$  increases

29)  $10(40) = \left(\frac{K}{10}\right)_{10}$

$K = 400$

30)  $10^2(40) = \left(\frac{K}{10^2}\right)_{10^2}$

$K = 40000$

31) a)  $y = 0.335 (6.108)^x$

b)  $y = 0.335 (6.108)^3 = 76.338$

$R = Obs - Pred$

$= 74 - 76.338 = -2.34$

32) a)  $h = -16t^2 + 60t + 235$

b) 219 ft

c) interpolation

33)  $(0.5)^{1/29} = (b^{29})^{1/29}$

$b = 0.972$

$100 = \frac{a(0.972)^{34}}{0.972^{34}}$

$a = 228.41g$

34) a)  $I = \frac{K}{d^2} \quad 20^2(75) = \left(\frac{K}{20^2}\right)_{20^2} \quad K = 30,000$

$I = \frac{30,000}{d^2}$

b)  $I = \frac{30,000}{25^2} \quad I = 48 \text{ candles}$

43) function,  $D: \{x | x \in \mathbb{R}\}$        $R: \{y | y \leq 0.5\}$

44) not a function, fails vertical line test

45) function,  $D: \{x | x \in \mathbb{R}\}$        $R: \{y | y \leq 3\}$

46) not a function, repeat x) (0,2) and (0,2)

51) positive      52) negative      53) negative      54)  $\approx$  zero