

① $\frac{1+5(7)-6 \div 2(1)}{3^2+2(1)} = \frac{1+35-3}{9+2} = \frac{33}{11} = 3$ (C)

② $-2(3x-5y) = -29 \Rightarrow -6x+10y = 58$
 $3(2x-10y) = -42 \Rightarrow +6x-30y = -124$
 $-20y = -68$
 $y = \frac{68}{20} = 3.4$ (B)
 ordinate is the y-coordinate

③ (D)
 If x is negative, then $|x| = -x$.
 B is false since zero will work but zero is not a positive Real number.

④ (C)

⑤ (D) Any expression squared cannot be equal to a negative value.

⑥ $5^{x-1} = 5^3 \Rightarrow x-1=3 \Rightarrow x=4$ (C)

⑦ 1 to 16 implies 17 parts.
 $323 \div 17 = 19g$ of hydrogen.

$$\begin{array}{r} 323 \\ -19 \\ \hline 304 \end{array}$$
 (D)
 grams of oxygen

⑧ $T = \frac{2\pi(r+h)}{v}$
 $Tv = 2\pi(r+h)$
 $\frac{Tv}{2\pi} = r+h$
 $\frac{Tv}{2\pi} - r = h$
 $\frac{Tv - 2\pi r}{2\pi} = h$ (A)

⑨ (C)

⑩ (C)

⑪ (E) Correct answer should be:
 $(r+5a)^3 - 5\pi = f^2$

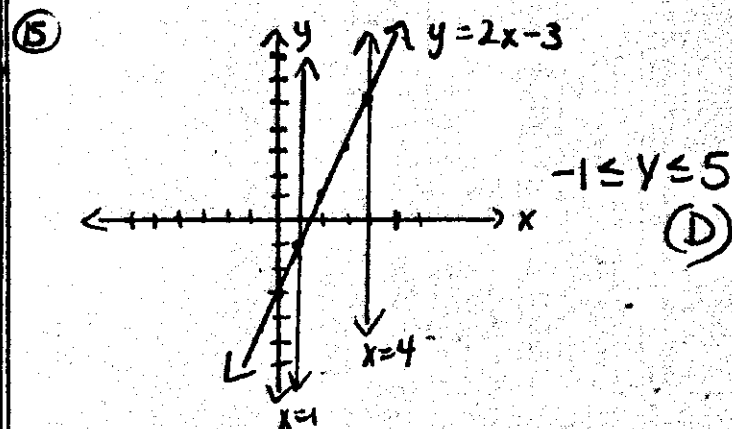
⑫ $3x-10y=7$
 $3x-7=10y$
 $\frac{3}{10}x - \frac{7}{10} = y$ \therefore slope = $\frac{3}{10}$

$-2x + Ky = 5$
 $Ky = 2x + 5$
 $y = \frac{2}{K}x + \frac{5}{K}$ $\therefore \frac{2}{K} = \text{slope}$

$\frac{3}{10} = \frac{2}{K}$
 $3K = 20$
 $K = \frac{20}{3}$ (B)

⑬ (C)

⑭ Let $x = \$$ to invest at 8%
 $10000 - x = \$$ to invest at 6%
 $.08x = 2(.06)(10000 - x)$
 $.08x = 2(600 - .06x)$
 $.08x = 1200 - .12x$
 $.20x = 1200$
 $x = 6000$ (B)



⑯ $2\sqrt{18} + \sqrt{50}$
 $2\sqrt{9 \cdot 2} + \sqrt{25 \cdot 2}$
 $2 \cdot 3\sqrt{2} + 5\sqrt{2}$
 $6\sqrt{2} + 5\sqrt{2} = 11\sqrt{2}$ (B)

⑰ $\frac{2(x-5)}{(x+5)(x-5)} = \frac{2}{x+5}$ (B)

- 18) Let x = ounces in 60% solution
 y = ounces in 35% solution

$$x + y = 100 \Rightarrow x = 100 - y$$

$$.60x + .35y = .45(x + y)$$

$$.60(100 - y) + .35y = .45(100)$$

$$60 - .6y + .35y = 45$$

$$60 - .25y = 45$$

$$15 = .25y$$

$$60 = y \quad (B)$$

19) $3[8 - 2m - 12m - 8] = -4m + 4 - 2 + 6m$
 $3[-14m] = 2m + 2$
 $-42m = 2m + 2$
 $-44m = 2$
 $m = -\frac{1}{22}$

multiplicative inverse is -22 . (A)

20) $h(-3) = f(-3) - g(-3)$
 $= 3(-3)^2 + 4 - [10 - 2(-3)]$
 $= 3(9) + 4 - [10 + 6]$
 $= 27 + 4 - 16$
 $= 15 \quad (B)$

21) $-2 \cdot 6 = 2(-2) - \frac{3}{6}$
 $-4 - \frac{1}{2} = -4\frac{1}{2} = 4.5 \quad (A)$

22) $-3 < 1 - \frac{1}{2}x \leq 4$
 $\frac{-1}{-1} \quad \frac{-1}{-1} \quad \frac{-1}{-1}$
 $\rightarrow 2(-4 < -\frac{1}{2}x \leq 3)$
 $8 > x \geq -6$ or $-6 \leq x < 8 \quad (A)$

23) y -intercept of $6 \Rightarrow (0, 6)$ is a point on the line. Parallel \Rightarrow same slope
 $2(0) - 5(6)$
 $0 - 30$
 -30
 $2x - 5y = -30$
 $2x + 30 = 5y$
 $\frac{2}{5}x + 6 = y \quad (A)$

24) $A = \{1, 2, 3, 4, \dots\}$ $B = \{11, 12, 13, 14, \dots\}$

$C = \{10, 15, 20, 25\}$

$A \cap B = \{11, 12, 13, 14, \dots\}$

$C \cup (A \cap B) = \{10, 15, 20, 25\} \cup \{11, 12, 13, 14, \dots\}$
 $= \{10, 11, 12, 13, 14, \dots\} \quad (C)$

25) $m = \frac{-2 - 1.5}{2 - 5} = \frac{-3.5}{-3} = \frac{35}{30} = \frac{7}{6} \quad (D)$

26) $\pi(R^2 - r^2) = \pi(R+r)(R-r) \quad (A)$

27) $\frac{m^{-14}}{u^{21}} \cdot \frac{u^{15}}{m^{-15}} \cdot 1$
 $\frac{1}{m^{14} \cdot u^{21}} \cdot \frac{u^{15} \cdot m^{15}}{1} = \frac{m}{u^6} \quad (B)$

28) $1\frac{1}{3} \cdot \frac{2}{9} \div 3\frac{2}{3}$
 $\frac{4}{3} \cdot \frac{2}{9} \div \frac{11}{3} = \frac{4}{3} \cdot \frac{2}{9} \cdot \frac{3}{11} = \frac{8}{99} \quad (E)$

29) $\frac{2x+1}{8} \cdot \frac{3}{3} - \frac{x+3}{6} \cdot \frac{4}{4}$
 $\frac{6x+3}{24} - \frac{4x+12}{24} = \frac{6x+3-4x-12}{24}$
 $= \frac{2x-9}{24} \quad (C)$

30) (E)

A is false: $0 - 2(0) \neq 2$

B is false: $-3 - 2(-1) \neq 2$

C is false: $2 - 2(2) \neq 2$

Dis false: $-5 - 2(0) \neq 2$