

1.) -22
 $x^2 - 2x - 24 = 0$
 $(x-6)(x+4) = 0$
 $x = 6, -4$
 $A = 6 + (-4) = 2$
 $B = 6(-4) = -24$
 $A + B = -22$

2.) $-\frac{1}{5}$
 $4 = \frac{3}{y} \Rightarrow y = \frac{3}{4}$
 $5 = \frac{2}{x} \Rightarrow x = \frac{2}{5}$
 $6 = \frac{5}{z} \Rightarrow z = \frac{5}{6}$
 $\frac{15(\frac{2}{5}) - 10(\frac{3}{4})}{9(\frac{5}{6})} = \frac{-1\frac{1}{2}}{7\frac{1}{2}} = -\frac{1}{5}$

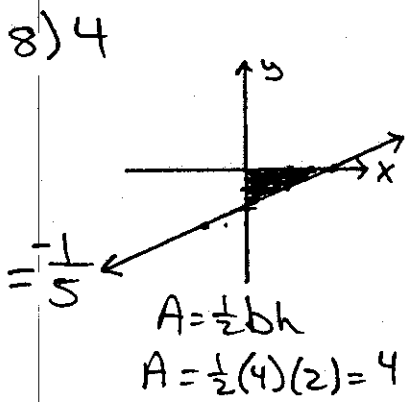
3.) $400 m^3$
 $3x + 6x + 8x = 850$
 $17x = 850$
 $x = 50$
 $8(50) = 400$

4.) $y = \frac{1}{3}x - 3\frac{1}{3}$
 $m = \frac{-4 - (-2)}{-1 - 5} = \frac{-2}{-6} = \frac{1}{3}$
 $y + 4 = \frac{1}{3}(x + 1)$
 $y = \frac{1}{3}x - 3\frac{2}{3}$

5) $\frac{2}{b-a}$ OR $\frac{-2}{a-b}$
 $\frac{\frac{1}{a} + \frac{1}{b}}{\frac{b}{2a} - \frac{a}{2b}} = \frac{\frac{b+a}{ab}}{\frac{b^2 - a^2}{2ab}} = \frac{b+a}{ab} \cdot \frac{2ab}{(b-a)(b+a)} = \frac{2}{b-a}$

6) $6\sqrt{2}$
 $d = \sqrt{(1+5)^2 + (-2+8)^2}$
 $= \sqrt{36 + 36} = \sqrt{72}$

7) $\frac{4}{7}$
 $28x^2 + 5x - 12 = 0$
 $28x^2 + 21x - 16x - 12 = 0$
 $7x(4x+3) - 4(4x+3) = 0$
 $(7x-4)(4x+3) = 0$
 $x = \frac{4}{7}, -\frac{3}{4}$



9) \$30,000
 $x = \text{Amt. of estate}$
 $x - \frac{1}{2}x - \frac{1}{4}x - \frac{1}{5}x = 1500$
 $\frac{1}{20}x = 1500$
 $x = 30,000$

10) 10

$\frac{3}{2}x - \frac{4}{3}y = \frac{11}{3} \Rightarrow 9x - 8y = 22$
 $\frac{1}{4}x - \frac{2}{3}y = \frac{-7}{6} \Rightarrow -3x + 8y = +14$
 $\frac{9x - 8y = 22}{-3x + 8y = 14} \Rightarrow 6x = 36 \Rightarrow x = 6$
 $\frac{3}{2}(6) - \frac{4}{3}y = \frac{11}{3}$
 $9 - \frac{4}{3}y = \frac{11}{3}$
 $-\frac{4}{3}y = -\frac{5}{3}$
 $y = 4$
 $x + y = 6 + 4 = 10$

11) $1\frac{1}{8}$ OR 1.125
 $A = 4 \quad (y = \frac{4}{3}x + 4)$
 $B = 2 \quad (2x+3)(x-2) = 0$
 $C = 0 \quad f(-1) = (-1)^3 - (-1)^2 + 2$
 $D = \frac{4}{3} \quad (y = \frac{4}{3}x + \frac{8}{3})$
 $\frac{3(2) \div 4 - 0}{\frac{4}{3}} = 1\frac{1}{8} = 1.125$

12) -4
 $x, x+2, x+4, x+6$
 $x+4 = x + 2(x+6)$
 $x+4 = 3x+12$
 $-8 = 2x$
 $-4 = x \quad -4, -2, 0, 2$

13) 16
 $f(x) = 4^x$
 $\frac{f(4)f(6)}{f(8)} = \frac{4^4 4^6}{4^8} = \frac{4^{10}}{4^8} = 4^2 = 16$

14) 15cm by 20cm
 $x^2 + (x+5)^2 = 25^2$
 $x^2 + x^2 + 10x + 25 = 625$
 $2x^2 + 10x - 600 = 0$
 $x^2 + 5x - 300 = 0$
 $(x+20)(x-15) = 0$
 $x = -20, 15$

15) $\frac{8}{5}$
 $\frac{a}{b} = 3 \Rightarrow a = 3b$
 $\frac{(3b+b)^2}{(3b)^2 + b^2} = \frac{(4b)^2}{9b^2 + b^2}$
 $= \frac{16b^2}{10b^2} = \frac{8}{5}$