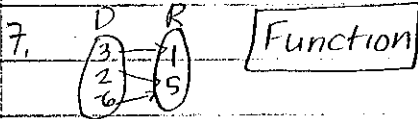
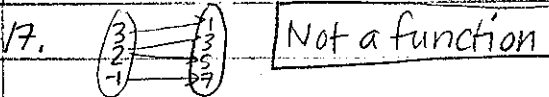


Algebra 2 - Assignment 37

NEW: Book pg 69



9. $\{(-1, 4), (2, 3), (2, 2), (3, 1)\}$ Not a function



19.

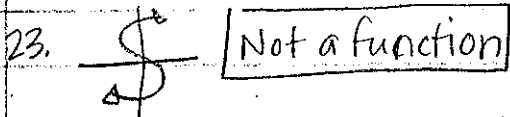
x	y
0.5	-3
2	0.8
0.5	8

 Not a function

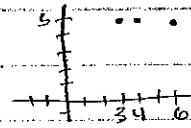
21.

x	y
3	5
3	10
3	15
3	20

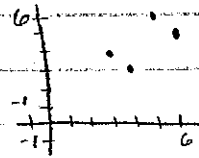
 Not a function



25. $\{(4, 5), (6, 5), (3, 5)\}$
Domain: $\{4, 6, 3\}$ Range: $\{5\}$
function, discrete



27. $\{(3, 4), (4, 3), (6, 5), (5, 6)\}$
Domain: $\{3, 4, 6, 5\}$ Range: $\{4, 3, 5, 6\}$
function, discrete



PACKET - do the following represent functions?

1. $x^2 + y^2 = 4$ no - exponent on the y

2. $x^2 + y = 4$ yes

3. $x^2 y - x^2 + 4y = 0$ no - variables multiplied together

Asmt 37, continued

$$4. y^2 = x^2 - 1 \quad \boxed{\text{No - exponent on } y}$$

Find domain & range:

$$5. f(x) = |x-2| + 3 \quad \boxed{\text{Domain: } \mathbb{R}, \text{ Range: } y \geq 3}$$

$$6. f(x) = 4 - x^2 \quad \boxed{\text{Domain: } \mathbb{R}, \text{ Range: } y \leq 4}$$

$$7. g(x) = 5x - 9 \quad \boxed{\text{Domain: } \mathbb{R}, \text{ Range: } \mathbb{R}}$$

$$8. h(x) = \sqrt{x-1} \quad \boxed{\text{Domain: } x \geq 1, \text{ Range: } y \geq 0}$$

$$9. f(x) = \sqrt{25-x^2} \quad \boxed{\text{Domain: } -5 \leq x \leq 5, \text{ Range: } 0 \leq y \leq 5}$$

REVIEW

$$10. \text{Solve: } \sqrt{3f+1} - 2 = 6$$

$$\sqrt{3f+1} = 8$$

$$3f+1 = 64$$

$$\frac{3f}{3} = \frac{63}{3} \rightarrow \boxed{f = 21}$$

11. Solve by factoring:

$$8b^2 + 10b = 3$$

$$8b^2 + 10b - 3 = 0$$

$$(4b-1)(2b+3) = 0$$

$$\frac{4b-1}{+1} = 0$$

$$\frac{4b}{4} = \frac{1}{4}$$

$$\frac{2b+3}{-3} = 0$$

$$\frac{2b}{2} = \frac{-3}{2}$$

$$\boxed{b = \frac{1}{4}, -\frac{3}{2}}$$

12. Complete the square:

$$\left(\frac{20}{2}\right)^2 = 10^2$$

$$x^2 + 20x + 75 = 0$$

$$x^2 + 20x + 100 = 100 - 75$$

$$\sqrt{(x+10)^2} = \sqrt{25}$$

$$x+10 = \pm 5$$

$$-10 \quad -10$$

$$x = -10 \pm 5$$

$$\nabla x = -10 + 5$$

$$\nabla x = -10 - 5$$

$$\boxed{x = -5}$$

$$\boxed{x = -15}$$

Asmt 37 - Continued

Solve by quadratic formula:

13. $n^2 = 8n - 16 \rightarrow n^2 - 8n + 16 = 0$

$$n = \frac{8 \pm \sqrt{(-8)^2 - 4(1)(16)}}{2(1)} = \frac{8 \pm \sqrt{64 - 64}}{2} = \frac{8 \pm 0}{2} = \boxed{4}$$

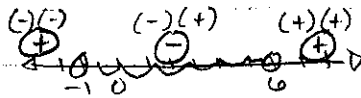
14. $x^2 - x + 1 = 0$

$$x = \frac{1 \pm \sqrt{(-1)^2 - 4(1)(1)}}{2(1)} = \frac{1 \pm \sqrt{1 - 4}}{2} = \frac{1 \pm \sqrt{-3}}{2} = \boxed{\frac{1 \pm i\sqrt{3}}{2}}$$

15. Solve: $x^2 - 5x - 6 < 0$

$(x - 6)(x + 1) < 0$

$x = 6 \quad x = -1$

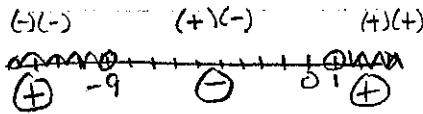


$\boxed{-1 < x < 6}$

16. $x^2 + 8x - 9 > 0$

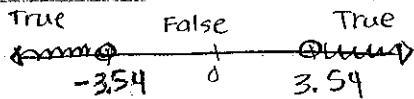
$(x + 9)(x - 1) > 0$

$x = -9, x = 1$



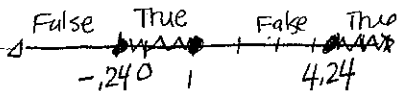
$\boxed{x < -9 \text{ OR } x > 1}$

17. $2x^2 > 25 \rightarrow 2x^2 - 25 > 0$



$\boxed{x < -3.54 \text{ OR } x > 3.54}$

18. $x^3 - 5x^2 + 3x + 1 \geq 0$



$\boxed{-0.24 \leq x \leq 4.24}$

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20. $\frac{p^3}{2q} \div \frac{-p^2}{4q} = \frac{p^3}{2q} \cdot \frac{4q}{-p^2} = \boxed{-2p}$

34. $\frac{4x^2 - 4}{9(x+1)^2} \cdot \frac{3x+3}{2x-2} = \frac{4(x+1)(x-1)}{9(x+1)(x+1)} \cdot \frac{3(x+1)}{2(x-1)} = \boxed{\frac{2}{3}}$

Asmt 37 ~ Cont.

$$\begin{aligned}
 \text{p566 } 36. \frac{12x^2+6x-6}{4(x+1)^2} \div \frac{6x-3}{2x+10} &= \frac{6(2x^2+x-1)}{4(x+1)^2} \cdot \frac{2x+10}{6x-3} \\
 &= \frac{\cancel{6}(2x-1)(x+1)}{2 \cdot 4(x+1)(x+1)} \cdot \frac{2(x+5)}{\cancel{3}(2x-1)} = \boxed{\frac{x+5}{x+1}}
 \end{aligned}$$

Page 568 Self-Test

$$\begin{aligned}
 10. \frac{w^2+5w+4}{6} \div \frac{w+1}{18w+24} &= \frac{w^2+5w+4}{6} \cdot \frac{18w+24}{w+1} \\
 &= \frac{(w+4)(w+1)}{6} \cdot \frac{6(3w+4)}{(w+1)} = \boxed{(w+4)(3w+4)}
 \end{aligned}$$

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$$\begin{aligned}
 22. \frac{5}{3a} - \frac{2}{7a} - \frac{1}{2a} &= \frac{5 \cdot 14}{3a \cdot 14} - \frac{2 \cdot 6}{7a \cdot 6} - \frac{1 \cdot 21}{2a \cdot 21} \\
 &= \frac{70}{42a} - \frac{12}{42a} - \frac{21}{42a} = \boxed{\frac{37}{42a}}
 \end{aligned}$$

$$\begin{aligned}
 24. \frac{m}{m^2-4} + \frac{2}{3m+6} &= \frac{3 \cdot m}{3(m+2)(m-2)} + \frac{2(m-2)}{3(m+2)(m-2)} = \frac{3m+2m-4}{3(m+2)(m-2)} \\
 &= \boxed{\frac{5m-4}{3(m+2)(m-2)}}
 \end{aligned}$$

$$28. \frac{5}{x+3} - \frac{2}{x-2} = \frac{5(x-2)}{(x+3)(x-2)} - \frac{2(x+3)}{(x-2)(x+3)} = \frac{5x-10-2x-6}{(x-2)(x+3)} = \boxed{\frac{3x-16}{(x-2)(x+3)}}$$

$$30. \frac{5}{x^2-3x-28} + \frac{7}{2x-14} = \frac{2 \cdot 5}{2(x-7)(x+4)} + \frac{7(x+4)}{2(x-7)(x+4)} = \frac{10+7x+28}{2(x-7)(x+4)}$$

$$= \boxed{\frac{7x+38}{2(x-7)(x+4)}}$$

Asmt 37 - Cont.

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$$8. \frac{y}{y+1} = \frac{2}{3} \rightarrow \frac{y \cdot 3}{(y+1)3} = \frac{2 \cdot (y+1)}{3(y+1)} \rightarrow \frac{3y}{-2y-2y} = \frac{2y+2}{-2y-2y}$$

$$3y = 2y + 2$$

$$y = 2$$

$$10. \frac{b^2 + 17b}{b} = \frac{1}{2} \rightarrow \frac{b \cdot b^2 + 17b}{b} = \frac{1 \cdot 3}{2 \cdot 3}$$

$$b^2 + 17b = 3$$

$$b^2 + 17b - 3 = 0 \rightarrow (6b - 1)(b + 3) = 0$$

$$\rightarrow \begin{array}{r} 6b - 1 = 0 \\ +1 \quad +1 \\ \hline 6b = 1 \\ \frac{6b}{6} = \frac{1}{6} \end{array}$$

$$\begin{array}{r} b + 3 = 0 \\ -3 \quad -3 \\ \hline b = -3 \end{array}$$

$$b = \frac{1}{6}, -3$$

$$14. \frac{1}{a} + \frac{1}{2} = \frac{2}{a}$$

$$\boxed{\begin{array}{l} LCD = 2a \\ a \neq 0 \end{array}}$$

$$\frac{1 \cdot 2}{a \cdot 2} + \frac{1 \cdot a}{2 \cdot a} = \frac{2 \cdot 2}{a \cdot 2} \rightarrow \frac{2}{-2} + \frac{a}{-2} = \frac{4}{-2} \rightarrow 2 + a = 4 \rightarrow a = 2$$

$$22. \frac{1}{t-1} + \frac{1}{t+2} = \frac{1}{2} \rightarrow \frac{1 \cdot 2(t+2)}{2(t+2)(t-1)} + \frac{1 \cdot 2(t-1)}{2(t+2)(t-1)} = \frac{1(t+2)(t-1)}{2(t+2)(t-1)}$$

$$\rightarrow 2t + 4 + 2t - 2 = t^2 + t - 2 \rightarrow 4t + 2 = t^2 + t - 2$$

$$\rightarrow 0 = t^2 - 3t - 4 \rightarrow 0 = (t-4)(t+1) \rightarrow t = 4, -1$$

$$30. \frac{3}{b^2 + 5b + 6} + \frac{(b-1)}{(b+2)} = \frac{7}{(b+3)} \rightarrow \frac{3}{(b+2)(b+3)} + \frac{(b-1)(b+3)}{(b+2)(b+3)} = \frac{7(b+2)}{(b+3)(b+2)}$$

$$\rightarrow 3 + b^2 + 3b - b - 3 = 7b + 14$$

$$\rightarrow \begin{array}{r} b^2 + 2b + 0 = 7b + 14 \\ -7b \quad -14 \quad -7b \quad -14 \\ \hline \end{array}$$

$$LCD = (b+2)(b+3)$$

$$b \neq -2 \quad b \neq -3$$

$$b^2 - 5b - 14 = 0$$

$$(b-7)(b+2) = 0$$

$$\begin{array}{r} b - 7 = 0 \\ +7 \quad +7 \\ \hline b = 7 \end{array}$$

$$\begin{array}{r} b + 2 = 0 \\ -2 \quad -2 \\ \hline b = -2 \end{array}$$

$$\boxed{b = 7}$$

$$\cancel{b = -2}$$