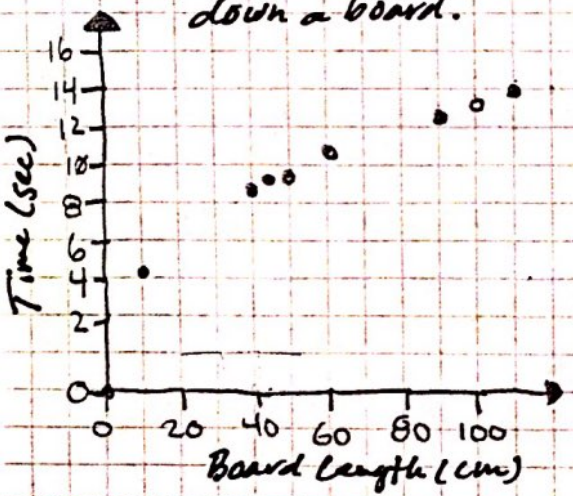
4.2:1

4-36 to 4-41.

4-36) Graphing Marbles rolling down a board.



A very strong postitive non-linear association with no apparent outliers.

4-37) Solve and check.

a) $8a+a-3=6a-2a-3$

$9a-3=4a-3$

$9a-4a=$

$\frac{5a}{5}=\frac{\emptyset}{5}$ $\boxed{a=0}$

Check: $3(0)+0-3=6(0)-2(0)-3$

$-3=-3$ ✓

b) $(M+2)(M+3)=(M+2)(M-2)$

M	M^2	$3M$
2	$2M$	6
	M	3

M	M^2	$-2M$
2	$2M$	-4
	M	-2

$M=-2$

c.) $\frac{x}{2}+1=6$

$-1 \quad -1$

$(2)(\frac{x}{2})=(5)(2)$

$\boxed{x=10}$

Check: $\frac{10}{2}+1=6$

$5+1=6$

$6=6$ ✓

d.) $4t-2+t^2=6+t^2$

$-t^2 \quad -t^2$

$4t-2=6$

$+2 \quad +2$

$\frac{4t}{4}=\frac{8}{4}$ $\boxed{t=2}$

Check: $4(2)-2+2^2=6+2^2$

$8-2+4=6+4$

$6+4=10$

$10=10$ ✓

4-38) Fabulous Footballers

a) 7 times the number of touchdowns and 3 times the numbers of field goals equal the total number of points. number of field goals is two times the number of touch downs plus one.

ii $f=2t+1$

$7t+3f=55$

b) $2t+1=$ substitute in for f

$7t+3(2t+1)=55$

$7t+6t+3=55$

$13t=52$

$\boxed{t=4 \text{ touchdowns}}$

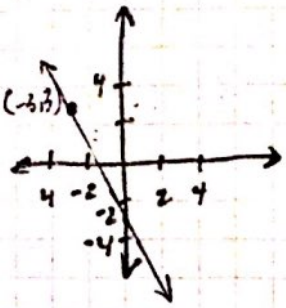
$f=2(4)+1$

$\boxed{f=9 \text{ field goals}}$

4-39) Complete table and.

a) graph.

x	y
-3	3
-2	1
-1	-1
0	-3
1	-5
2	-7
3	-9



b) Is the equation $2x+y=-3$? How do you know.

$2x+y=-3$ given: $(-3, 3)$ and $(-2, 1)$

$2(-3)+3=-3$

$-6+3=-3$ ✓ works!

$2(-2)+1=-3$

$-4+1=-3$

$-3=-3$ ✓ works

Both given points make the equation true.

4-40) Who is right?

$3(6x-1)+2y=43$ -kevin

$3x+2(6x-1)=43$ -katy

$y=6x-1$

$\therefore 3x+2y=43$

$3x+2(6x-1)=43$

↑ substituted in for y

KATY IS RIGHT BECAUSE YOU NEED TO SUBSTITUTE FOR Y NOT X.

4-41) simplify.

a) $5^0 \cdot 2^{-3}$

power of $0=1$

$1 \cdot \frac{1}{2^3} = 1 \cdot \frac{1}{8}$

$\therefore = \boxed{\frac{1}{8}}$

b) $\frac{a^3}{b^{-2}} \cdot \frac{ab^2}{a^4}$

$\frac{a^4 b^2}{b^{-2} a^4} = b^2(b^2)$

$= \boxed{b^4}$

c) $2.3 \times 10^{-3} \cdot 4.2 \times 10^2$

$(2.3 \cdot 4.2) \times (10^{-3} \cdot 10^2)$

$\boxed{9.66 \times 10^{-1}}$

$-9.66,000$

d) $(3.5 \times 10^3)^2$

$(3.5 \times 10^3)(3.5 \times 10^3)$

$\boxed{1.225 \times 10^7}$