Name: Key Date: Hour:

Algebra 1
Review WS for PC #1 – Unit 2B

1. A company's cost are $400 a week and profit $20 per item sold. Write a linear equation to represent the total profit per week if the companies sold x items.

$y = 20x + 400$

2. Draw a scatter plot for the age and tail length of some tadpoles.

Ages (days)	5	2	9	7	12	10	3	6
Tail (mm)	14	15	3	8	1	3	12	9

a. Draw a line of best fit.

b. Write the equation of your line of best fit.

$(6, 9)$ $(2, 16)$

$m = \frac{9-16}{6-2} = -\frac{7}{4}$

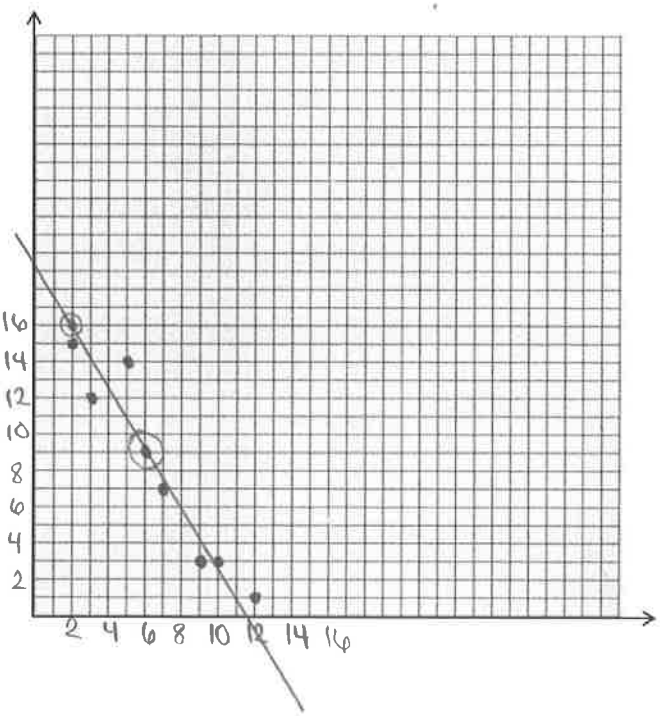
$9 = -\frac{7}{4}(6) + b$

$9 = -10.5 + b$

$+10.5 \quad +10.5$

$19.5 = b$

$y = -\frac{7}{4}x + 19.5$



c. Describe the correlation.

strong negative

d. Estimate the correlation coefficient.

$r \approx 0.95$

3. Define the following. Then identify which part of your function illustrates each transformation.

a. Translation: moves up or down - your 'b' value

b. Rotation: rotates graph - your 'm' value

c. Reflection: reflects across y-axis - your 'm' value

4. Write an equation for each transformation.

a. up 7, rotated by a factor of 8, reflected

$y = -8x + 7$

b. up 1, compressed by a factor of $-\frac{1}{2}$

$y = -\frac{1}{2}x + 1$

c. down 10, stretched by factor of 5

$y = 5x - 10$

d. up 2, rotated by a factor of $-\frac{7}{4}$

$y = -\frac{7}{4}x + 2$

e. down $\frac{2}{3}$, stretched by a factor of 3, reflected

$y = -3x - \frac{2}{3}$

5. Explain each transformation from the parent function.

a. $y = -x + 3$

reflect normal up 3

b. $y = 4x - 5$

Stretch down 5

c. $y = \frac{1}{2}x - \frac{7}{2}$

compress down $\frac{7}{2}$

d. $7x + 5y = 15$

$-7x \quad -7x$

$\frac{5y}{5} = \frac{-7x}{5} + \frac{15}{5}$

$y = -\frac{7}{5}x + 3$

reflected Stretch up 3

e. $y + 3 = 2(x + 5)$

$y + 3 = 2x + 10$

$-3 \quad -3$

$y = 2x + 7$

Stretch up 7

f. $2x = 4y + 8$

$-8 \quad -8$

$\frac{2x - 8}{4} = \frac{4y}{4}$

$y = \frac{1}{2}x - 2$

compress down 2

Write a function to represent each table, pattern or sequence.

6.

x	2	4	6	8	10
f(x)	-4	-1	2	5	8

+2 +2 +2 +2

+3 +3 +3 +3 +3

$f(x) = \frac{3}{2}x - 7$

7. $a_1 = 7, \quad d = -2$

$a_n = -2n + 9$

or $f(x) = -2x + 9$

8. 

-2 2 6 10 14

+4 +4 +4 +4

$f(x) = 4x - 2$

Write the slope-intercept form of the equation of the line through the given points.

9. (5, 3) and (3, -3)

$m = \frac{-6}{-2} = 3$

$3 = 3(5) + b$

$3 = 15 + b$

$-15 \quad -15$

$-12 = b$

$y = 3x - 12$

10. (-5, -1) and (-4, 3)

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

$-1 = 4(-5) + b$

$-1 = -20 + b$

$+20 \quad +20$

$19 = b$

$y = 4x + 19$

Write the slope-intercept form of the equation of the line described.

11. thru: (-1, -1); parallel to $y = 2x + 3$

$m = 2$

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

$-1 = -2 + b$

$+2 \quad +2$

$1 = b$

$y = 2x + 1$

12. thru: (-4, 3); perpendicular to $y = \frac{2}{3}x - 3$

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

$3 = -\frac{3}{2}(-4) + b$

$3 = 6 + b$

$-6 \quad -6$

$-3 = b$

$y = -\frac{3}{2}x - 3$