Precalculus A/B Name_____ ID: 1

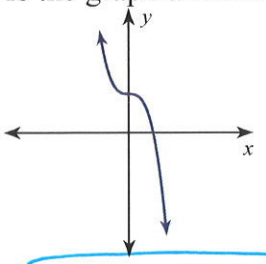
Chapter 1 Review - Part 1

Date_____ Period____

1) (6pts) Determine whether the relation, is a functions.
{ (-5, -1) (1, 0) (1, 0) (5, 0) }
Function / NOT FUNCTION (circle)
State the domain and range of the relation.
DOMAIN: $x = -5, 1, 5$
RANGE: $y = -1, 0$

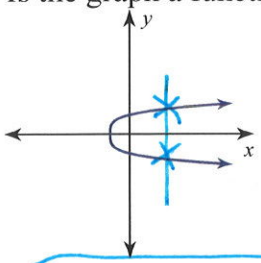
2) (6pts) Determine whether the relation, is a functions.
{ (-3, 0) (-1, 0) (0, 1) (3, 1)}
Function / NOT FUNCTION (circle)
State the domain and range of the relation.
DOMAIN: $x = -3, -1, 0, 3$
RANGE: $y = 0, 1$

3) Is the graph a function? EXPLAIN.



yes, passes V-Line Test

4) Is the graph a function? EXPLAIN.



No. Fails the V-Line test

Find each product.

5) $(2x-4)^2$ $(2x-4)(2x-4) = 4x^2 - 8x - 8x + 16$

$4x^2 - 16x + 16$

Identify the domain of each.

6) $y = \dfrac{x+1}{2x+10}$ → $2x + 10 = 0$, $-10 \quad -10$, $2x = -10$, $x = -5$

Domain: $x \neq -5$

7) $y = \dfrac{2x}{x-6}$ → $x - 6 = 0$, $x = 6$

Domain: $x \neq 6$

Factor each completely.

8) $x^2 - 14x + 49 = (x-7)(x-7)$ or $(x-7)^2$

9) $b^2 + 6b - 16$

$(b+8)(b-2)$

10) $r^2 + 11r + 24$

$(r+8)(r+3)$

11) $4n^2 + 12n$ ← ALWAYS FACTOR OUT GREATEST COMMON FACTOR

$4n(n+3)$

Evaluate each function. Circle final answer.

12) $k(x) = x^2 + 4$; Find $k(-4)$

20 $K(-4) = (-4)^2 + 4$

$= 16 + 4$

13) $h(a) = |2a+1| - 2$; Find $h(-6)$

9 $h(-6) = |2(-6)+1| - 2 =$

$|-11| + -2 =$

$11 - 2 =$

14) $g(n) = -3n$; Find $g(2a)$

$-6a$

$g(2a) = -3(2a)$

15) $p(n) = n^2 - 2$; Find $p(n+3)$

$n^2 + 6n + 7$

$p(N+3) = (N+3)^2 - 2$

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

$= N^2 + 6N + 9 - 2$

16) $g(x) = 3x + 2$; Find $g(x-2)$

$3x - 4$

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

$= 3x - 6 + 2$

Perform the indicated operation.

17) $g(n) = 2n + 3$
$h(n) = 4n + 5$
Find $(g - h)(-9)$ =

$g(-9) - h(-9) =$

$[2(-9)+3] - [4(-9)+5] =$

$-15 - [-31] =$

$-15 + 31 = 16$

18) $h(n) = 2n + 3$
$g(n) = n - 3$
Find $(h \cdot g)(-7)$ =

$h(-7) \cdot g(-7) =$

$[2(-7)+3] \cdot [-7-3]$

$(-11) \cdot (-10) =$

110

19) $h(n) = 4n + 4$
$g(n) = n + 1$
Find $(h + g)(n - 2)$ =

$h(N-2) + g(N-2) =$

$[4(N-2)+4] + [N-2+1] =$

$[4N-8+4] + [N-1] =$

$4N - 4 + N - 1 =$

$5N - 5$

20) $h(x) = -4x + 3$
$g(x) = 2x - 1$
Find $(h - g)(x - 1)$ =

$h(x-1) - g(x-1) =$

$[-4(x-1)+3] - [2(x-1) - 1] =$

$[-4x+4+3] - [2x-2-1] =$

$[-4x+7] - [2x-3] =$

$-4x+7-2x+3 =$

$-6x+10$

21) $f(x) = 2x - 3$
$g(x) = 4x + 3$
Find $(f \cdot g)(-2x)$ $= f(-2x) \cdot g(-2x) =$

$32x^2 + 12x - 9$

$[2(-2x) - 3] \cdot [4(-2x) + 3] =$
$[-4x - 3] \cdot [-8x + 3] =$
$32x^2 - 12x + 24x - 9$

22) $g(a) = a^2 - 2$
$h(a) = 2a - 4$
Find $\left(\frac{g}{h}\right)(4z)$ $= \frac{g(4z)}{h(4z)} = \frac{(4z)^2 - 2}{2(4z) - 4}$

$\frac{8z^2 - 1}{4z - 2}$

Remember $z \neq 1/2$

23) $g(n) = n^2 - 4n$
$f(n) = 3n + 2$
Find $(g \circ f)(-2n)$

$g[f(-2n)]$
$g[(-2n) \cdot 3 + 2]$
$g[-6n + 2] =$
$(-6n + 2)^2 - 4(-6n + 2)$

24) $g(t) = 3t^2 - t$
$f(t) = t + 5$
Find $(g \circ f)(x^2)$

$g[f(x^2)] =$
$g[x^2 + 5] =$
$3(x^2 + 5)^2 - 1 =$
$3x^2 + 15 - 1$
$3x^2 + 14$

Write the slope-intercept form of the equation of each line given the slope and y-intercept.

25) Slope = 5, y-intercept = –1

$y = 5x - 1$

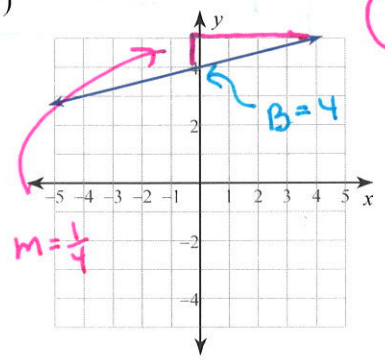
26) Slope = 1, y-intercept = 2

$y = x + 2$

Write the slope-intercept form of the equation of each line. $y = mx + b$

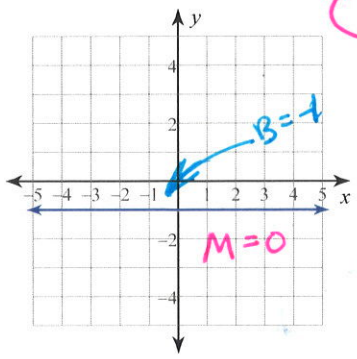
b = y intercept
m = slope

27)



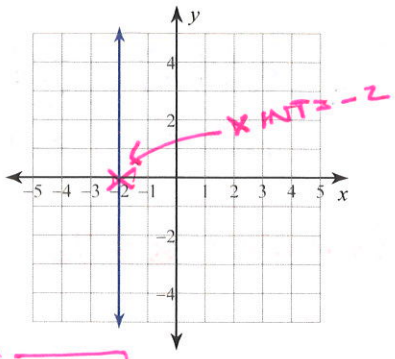
$y = \frac{1}{4}x + 4$

28)



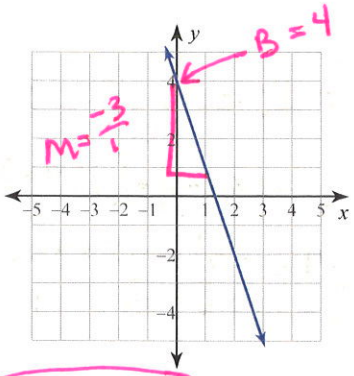
$y = -1$

29)



$x = -2$

30)



$y = -3x + 4$

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

31) through: $(5, -1)$, slope = 0

x y

$y = -1$

$y = mx + b$

$-1 = 0(5) + b$

$b = -1$

32) through: $(4, -4)$, slope $= -\frac{5}{4}$

x y

$y = -\frac{5}{4}x + 1$

$y = mx + b$

$-4 = -\frac{5}{4}(4) + b$

$-4 = -5 + b$

$+5 \quad +5$

$b = 1$

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

33) through: $(5, -1)$ and $(4, 1)$

$M = \frac{\Delta y}{\Delta x} = \frac{1-(-1)}{4-5} = \frac{2}{-1}$ $m = -2$

$y = mx + b$ pick either pt

$1 = -2(4) + b$

$1 = -8 + b$

$+8 \quad +8$

$b = 9$

$y = -2x + 9$

34) through: $(2, -4)$ and $(0, -3)$ ← y-intercept $(0, b)$

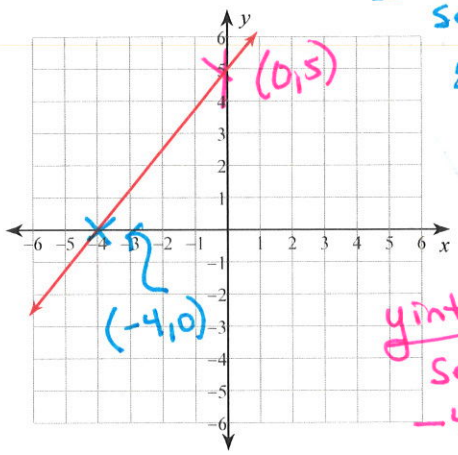
$m = \frac{\Delta y}{\Delta x} = \frac{-3 - (-4)}{0 - 2} = \frac{1}{-2}$

$m = -\frac{1}{2}$

$y = -\frac{1}{2}x - 3$

Graph of each line with x and y intercepts. Label the ordered pairs for the x and y intercepts on the graph.

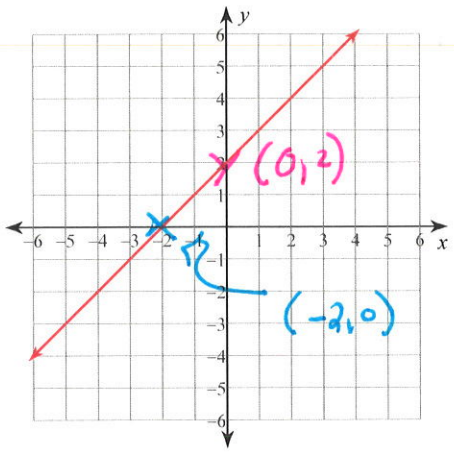
35) $5x - 4y = -20$



X INT
Set y = 0
5x = -20
x = -4

y int
Set x = 0
-4y = -20
y = 5

36) $x - y = -2$

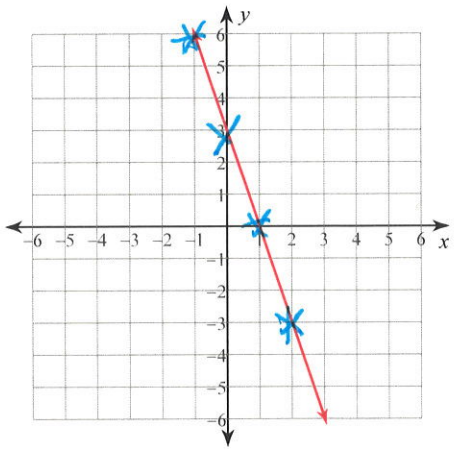


X INT
x = -2

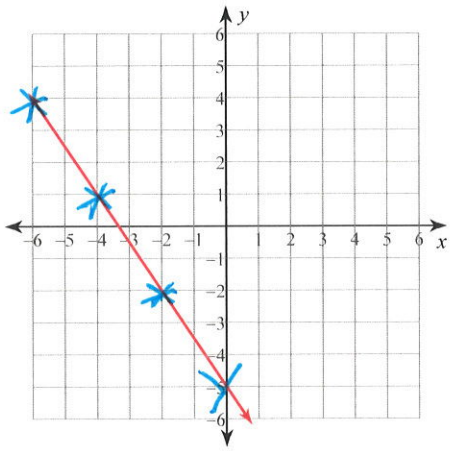
y int
$\frac{-y = -2}{-1 \quad -1}$
y = 2

Graph each line. Label the y-intercept with a "Y" and 2 points with a "*" to show you are correctly showing you understand slope.

37) $y = -3x + 3$ $m = \frac{-3}{1}$ $b = 3$

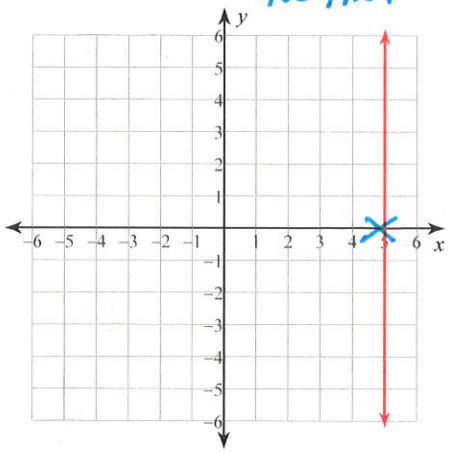


38) $y = -\frac{3}{2}x - 5$ $m = \frac{-3}{2}$ $b = -5$

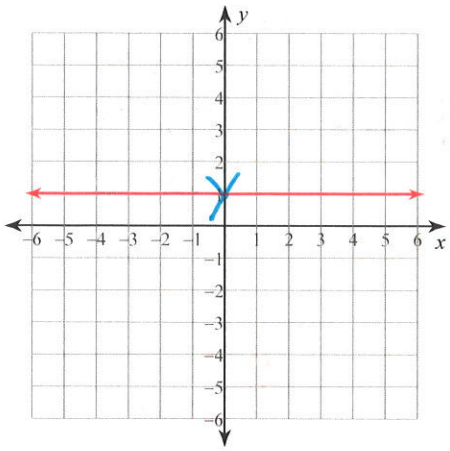


Sketch the graph of each line.

39) $x = 5$ m = UNDEFINED NO YINT



40) $y = 1$ m=0 b=1



41) Piecewise functions - review notes and be able to match functions with graphs

You can do it :)

Chapter 1 Review (Part 2)

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

1) through: $(4, 2)$, parallel to $y = \frac{7}{4}x - 3$

$y = \frac{7}{4}x - 5$

$\parallel m = 7/4$

$2 = \frac{7}{4}(4) + b$

$2 = 7 + b$

$-7 \quad -7$

$b = -5$

2) through: $(0, 1)$, parallel to $y = -5x - 4$

$y = -5x + 1$

$\parallel m = -5$

3) through: $(0, -4)$, perp. to $y = -3x - 1$

$y = \frac{1}{3}x - 4$

$m = -3$

$\perp m = 1/3$

4) through: $(-3, -1)$, perp. to $y = \frac{3}{2}x - 4$

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

$m = 3/2$

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

$-1 = \frac{-2}{3}(-3) + b$

$-1 = 2 + b$

$-2 \quad -2$

$b = -3$

5) through: $(0, -1)$, perp. to $y = -\frac{1}{3}x - 5$

$y = 3x - 1$

$m = \frac{-1}{3}$

$\perp m = 3$

Sketch the graph of each linear inequality.

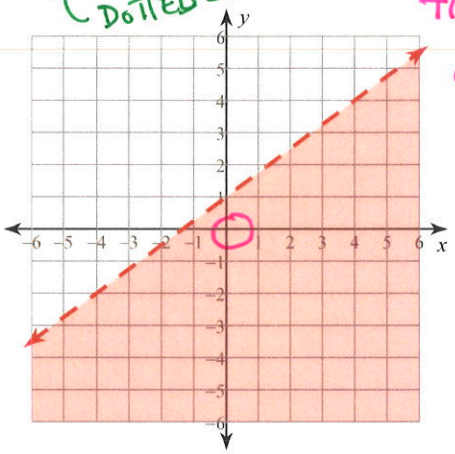
6) $y < \frac{3}{4}x + 1$

DOTTED LINE

T(0,0)

$0 < \frac{3}{4}(0) + 1$

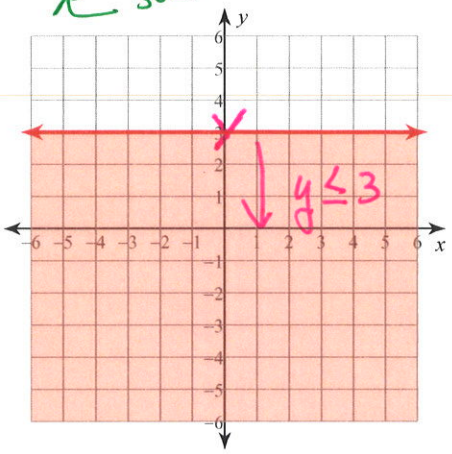
$0 < 1$ T



7) $y \leq 3$

SOLID LINE

$y \leq 3$



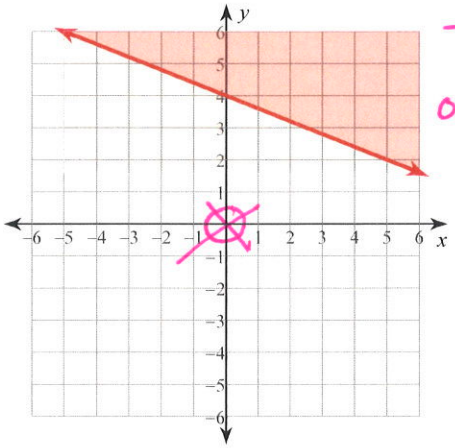
8) $y \geq -\frac{2}{5}x + 4$

SOLID LINE

T(0,0)

$0 \geq \frac{-2}{5}(0) + 4$

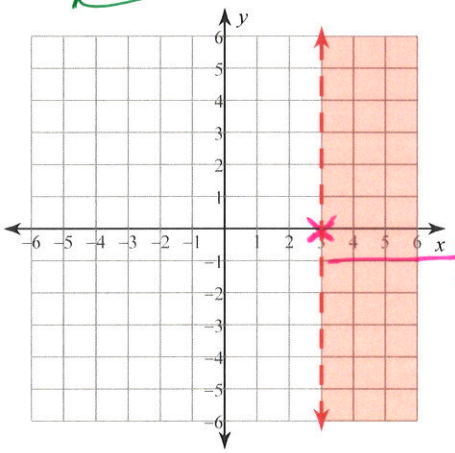
$0 \geq 4$ (F)



9) $x > 3$

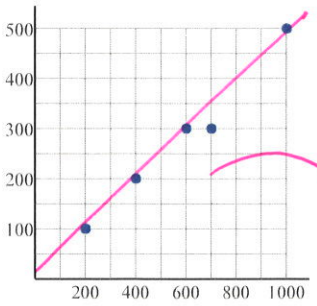
DOTTED LINE

$x > 3$



State if there appears to be a positive correlation, negative correlation, or no correlation.

10)

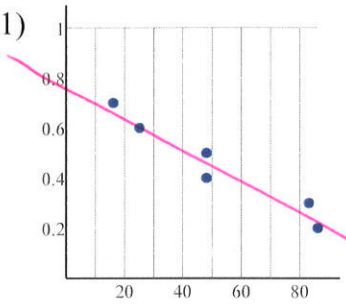


*A) Positive correlation

B) Negative correlation

C) No correlation

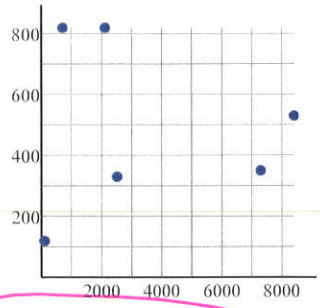
11)



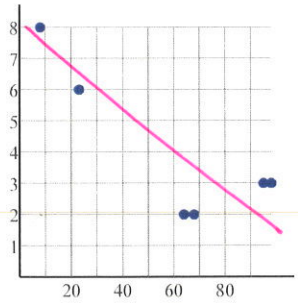
A) Positive correlation

*B) Negative correlation

C) No correlation

12) 

*A) No correlation
B) Negative correlation
C) Positive correlation

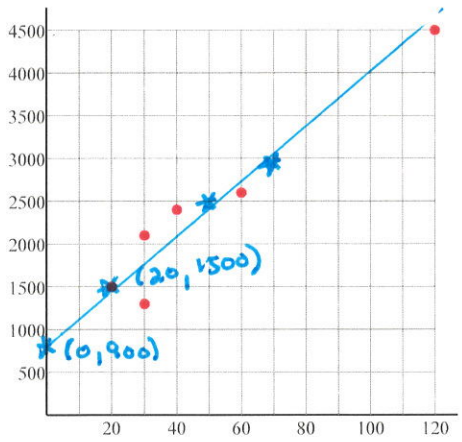
13) 

A) No correlation
B) Positive correlation
*C) Negative correlation

a) Construct a scatter plot.
b) Find the slope-intercept form of the equation of the line that best fits the data.
c) Draw the line that best fits the data by labeling 2 points.
d) Give r^2 value and explain what it means.

14)

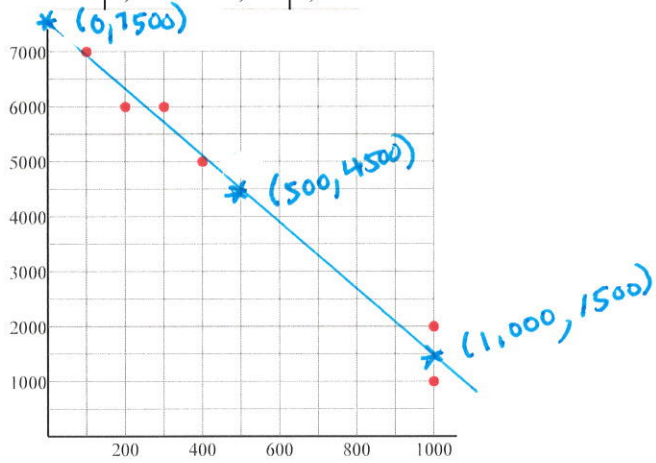
X	Y
20	1,500
30	1,300
30	2,100
40	2,400
60	2,600
120	4,500



$\hat{y} = 30x + 900$
$r^2 = 0.933$

15)

X	Y
100	7,000
200	6,000
300	6,000
400	5,000
1,000	1,000
1,000	2,000



$\hat{y} = -6x + 7500$
$r^2 = 0.976$