Name: KEY

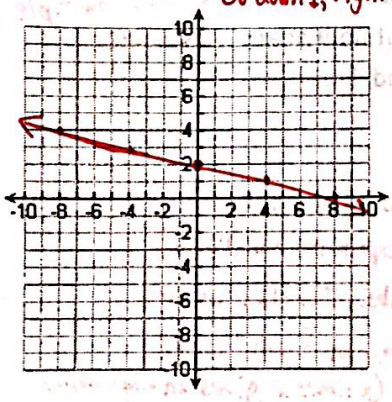
TNReady Review Packet

Instructions: Complete each question and show all work. You may use a calculator only on the calculator section. This will be worth an 0.5 grade. I will select 10 RANDOM problems to grade.

Graph each equation.

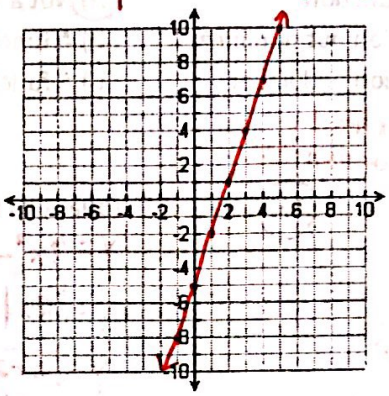
1) $y = -\frac{1}{4}x + 2$

Start at (0,2)
Go down 1, right 4



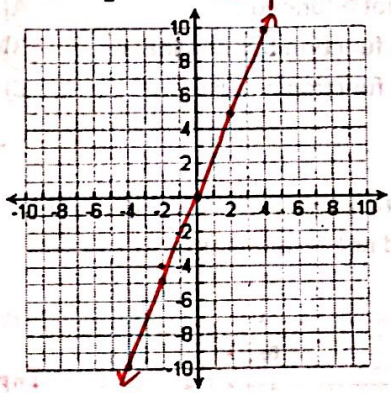
2) $y = \frac{3}{1}x - 5$

Start at (0,-5)
Go up 3, right 1



3) $y = \frac{5}{2}x + 0$

Start at (0,0)
Go up 5, right 2



Find the slope of the line between the two points or from the table. Simplify if possible. $\left(\frac{y_2-y_1}{x_2-x_1}\right)$

4) (-1, 6) and (8, 4)

$x_1\ y_1$ $x_2\ y_2$

$\frac{4-6}{8-(-1)} = \boxed{\frac{-2}{9}}$

5) (1, 5) and (-3, 11)

$x_1\ y_1$ $x_2\ y_2$

$\frac{11-5}{-3-1} = \frac{+6}{-4} = \boxed{-\frac{3}{2}}$

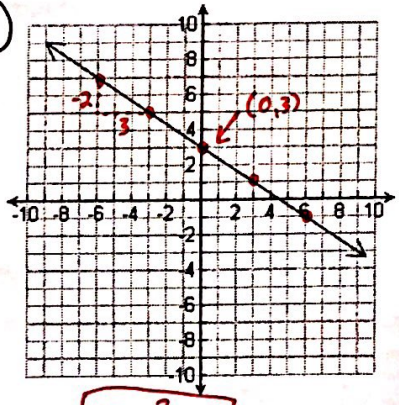
6)

x	0	3	6	9	12
y	16	10	4	-2	-8

$\frac{16-10}{0-3} = \frac{6}{-3} = \boxed{-2}$

Write an equation in slope-intercept form. (y = mx + b)

7)



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

8)

x	y
-2	-3
-1	1
0	5
1	9
2	13

+1 +1 +1 +1

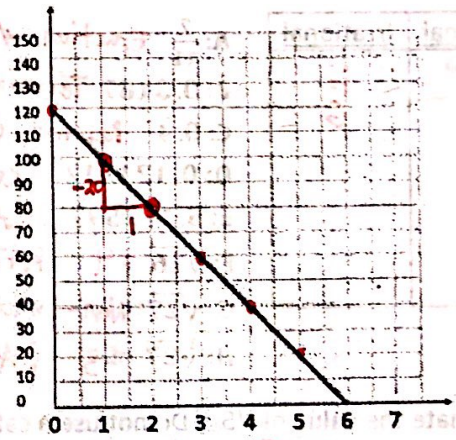
+4 +4 +4 +4

y-intercept

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

$\boxed{y = 4x + 5}$

9)



$\boxed{y = -20x + 120}$

(1, 100)
(2, 80)

slope $= \frac{80-100}{2-1}$
$= \frac{-20}{1}$
$= -20$

10) Laura got a new puppy, which grew the same number of pounds per year. The puppy was originally 9 pound. After 3 years, it was 15 pounds. Write an equation that gives the weight **y** of the dog **x** years after she bought it.

3 years → 6 pounds

2 pounds per year

$\boxed{y = 2x + 9}$

Say whether each is: A) Not a function; B) A function but nonlinear; C) A function and linear

11)

x	y
-2	-3
-1	1
0	5
1	9
2	13

+1 < +1 < +1 < +1 <

> +4 > +4 > +4 > +4

constant rate of change!

A) Not a function
B) A function but nonlinear
C) A function and linear

12)

x	y
3	8
4	8
5	9
6	9
7	10

> +0 > +1 > +0 > +1

A) Not a function
B) A function but nonlinear
C) A function and linear

Each x has 1 y
NOT constant ROC.

13)

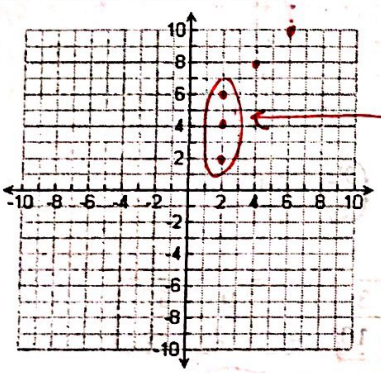
x	y
1	22
2	24
1	26
2	28
3	30

A) Not a function
B) A function but nonlinear
C) A function and linear

Input of "1" has multiple outputs (2 as well)

Need to remember 2 different rules – what makes something a function? And what makes something linear?

14) Draw six points on the graph that would **not** be a function.



Input of "2" has multiple outputs (2,4,6)

15) Create two equations that would be nonlinear.

$y = 4x^2 - 1$ (exponent = Non-linear)
$y = |2x|$ (abs. value = Non linear)
$y = \sqrt{x+2}$ (sq. root = Non linear)
$y = x(x+1)$ (x times x gives an exponent)

16) Create two equations that would be linear.

$y = 2x + 3$
$4x + 7y = 36$
$y = \frac{1}{4}x + 9$

17) Write each letter in the correct box, according to whether it is rational or irrational.

Rational	Irrational
A	E
B	G
C	
D	
F	
H	

A: $\frac{7}{11}$ Fraction w/ whole #s = RAT
B: 0.3187 Terminating decimal = RAT
C: $0.\overline{4}$ Repeating dec. = RAT
D: 0.121212 ... Repeating dec. = RAT
E: 5.183597 ... Not terminating or repeating = IR
F: $\sqrt{16} = 4$ RAT
G: $\sqrt{27}$ Non-exact root = IR
H: $\sqrt[3]{27} = 3$ RAT

18) Estimate the value of $\sqrt{58}$. Do not use a calculator. Explain your reasoning in words.

$\sqrt{58}$ should be between 7 and 8.
$\sqrt{49} = 7$ 58 is closer to 64 than 49. So $\sqrt{58}$ should be closer to 8 than 7.
$\sqrt{64} = 8$ But 58 is not ~~that~~ close to 64.

Acceptable range: $\boxed{7.6 \text{ to } 7.8}$ (closest → 7.6)

19) Solve: $x^2 = 64$. Find all possible solutions.

$\boxed{x = 8, x = -8}$

$8 \cdot 8 = 64$
$-8 \cdot -8 = 64$

20) 19) Solve: $x^2 = -121$. Find all possible solutions.

$\boxed{\text{No Solution}}$

Nothing times itself = negative

Solve each equation. (2 of them are "weird" ones – no solution or infinite solutions)

21) $3(2x+4)+3x=-x+72$

$6x+12+3x=-x+72$

$9x+12=-x+72$

$+x \quad +x$

$10x+12=72$

$-12 \quad -12$

$\frac{10x}{10}=\frac{60}{10}$

$\boxed{x=6}$

22) $2x+4=2x+10$

$-2x \quad -2x$

$4=10$

$\boxed{\text{NO SOLUTION}}$

23) $4x+2=10x+2$

$-4x \quad -4x$

$2=6x+2$

$-2 \quad -2$

$\frac{0}{6}=\frac{6x}{6}$

$\boxed{0=x}$

$\boxed{\text{NOT ONE OF THE WEIRD ONES!!!}}$

24) $-2(3x-8)+7x=19-5x+6x-3$

$-6x+16+7x=x+16$

$x+16=x+16$

$\boxed{\text{Infinite solutions}}$

Solve each system of equations:

25) (Substitution) $\begin{cases} y=2x+3 \\ 4x+2y=30 \end{cases}$

$4x+2(2x+3)=30$

$4x+4x+6=30$

$8x+6=30$

$-6 \quad -6$

$\frac{8x}{8}=\frac{24}{8}$

$x=3$

$y=2(3)+3$

$y=6+3$

$y=9$

$\boxed{(3,9)}$

$\boxed{\text{DON'T FORGET TO ALSO FIND Y!}}$

26) (Elimination) $\begin{cases} 4x-3y=13 \\ -2x+5y=11 \end{cases}$

$\boxed{\text{*Multiply by 2 so x's can cancel!}}$

$4x-3y=13$

$-4x+10y=22$

$\frac{7y}{7}=\frac{35}{7}$

$y=5$

$4x-3(5)=13$

$4x-15=13$

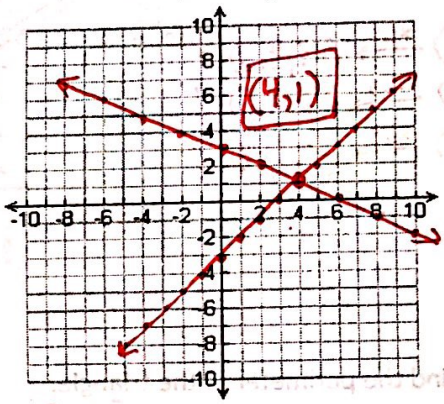
$+15 \quad +15$

$\frac{4x}{4}=\frac{28}{4}$

$x=7$

$\boxed{(7,5)}$

27) (Graphing) $\begin{cases} y=\frac{1}{2}x-3 \\ y=-\frac{1}{2}x+3 \end{cases}$



Simplify.

28) $(7ab^6)^2$

$7ab^6 \cdot 7ab^6$

$(7\cdot a\cdot b\cdot b\cdot b\cdot b\cdot b\cdot b)$

$(7\cdot a\cdot b\cdot b\cdot b\cdot b\cdot b\cdot b)$

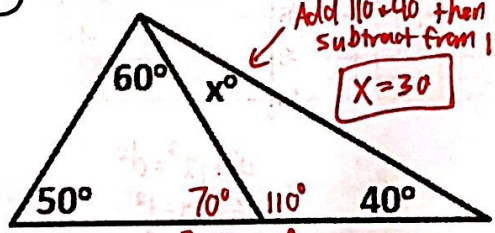
$\boxed{49a^2b^{12}}$

29) $\frac{m^{10}n^1}{m^{10}n^4}$

$n^{1-4}=n^{-3}=\boxed{\frac{1}{n^3}}$

30) $\frac{3x^5\cdot 8x^4}{2x^3}=\frac{24x^9}{2x^3}=\boxed{12x^6}$

31) Find the value of x:



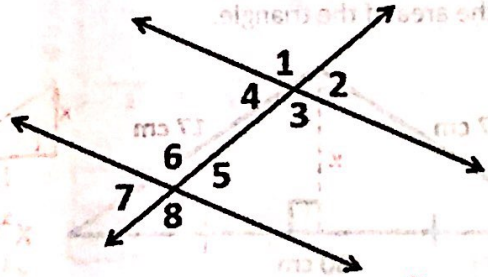
Add 110+40 then subtract from 180

$\boxed{x=30}$

Add 50+60 then subtract from 180°

Subtract 70 from 180° (straight line)

32) Assume the two lines are parallel.



a) If $m\angle 2=55^o$, what is $m\angle 5$? 55° (corresponding → same)

b) If $m\angle 6=109^o$, what is $m\angle 4$? 71° (same-side interior → supp.)

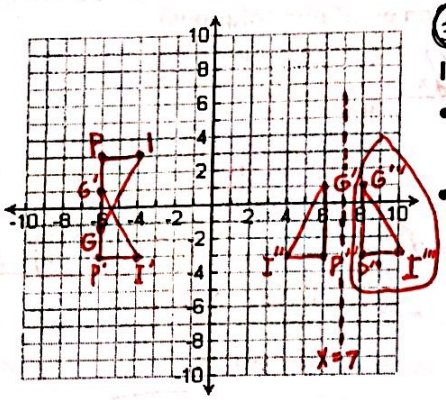
c) If $m\angle 5=68^o$, what is $m\angle 1$? 112°

d) What type of special angle pair are ∠5 and ∠7? Vertical

e) What type of special angle pair are ∠1 and ∠6? Corresponding

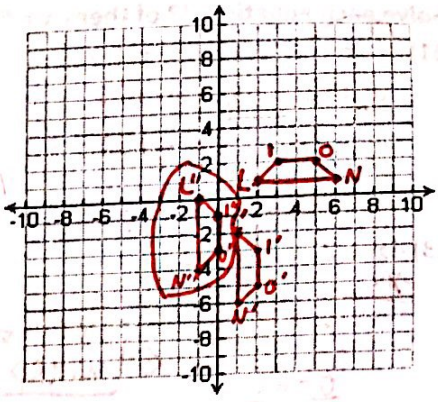
33) Start with P(-6, 3) I(-4, 3) G(-6, -1)

- Reflect across the x-axis.
- Reflect across the y-axis.
- Reflect across the line x = 7.



34) Start with L(2, 1) I(3, 2) O(5, 2) N(6, 1)

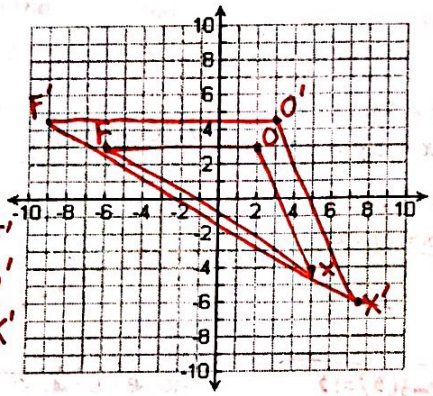
- Rotate 270° counterclockwise G
- Translate by (x – 2, y + 2) left 2 up 2



35) Start with F(-6, 3) O(2, 3) X(5, -4)

- Dilate using a scale factor of 1.5.

F (-6,3) $\xrightarrow{\times 1.5}$ (-9,4.5) F'
O (2,3) $\xrightarrow{\times 1.5}$ (3,4.5) O'
X (5,-4) $\xrightarrow{\times 1.5}$ (7.5,-6) X'

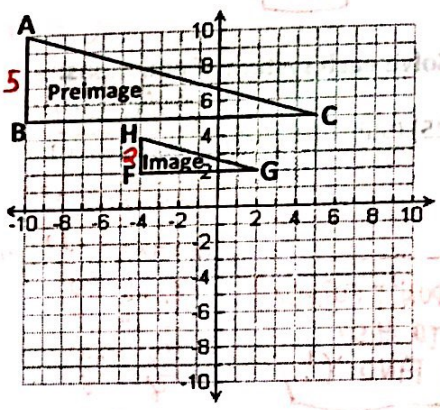


36)

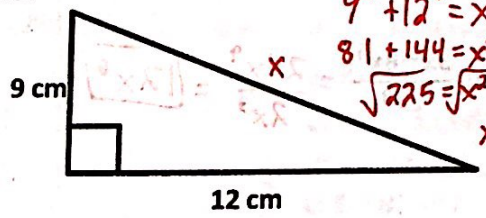
a) Find the scale factor of the dilation.

$\boxed{k = \frac{2}{5}}$ or $\boxed{0.4}$

$\frac{\text{Image}}{\text{Original}}$ = scale factor



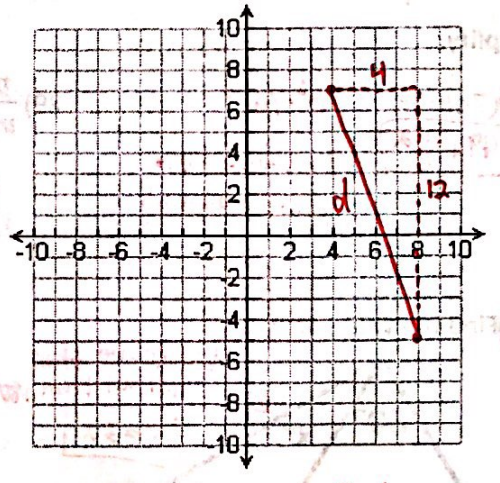
37) Find the perimeter of the triangle.



$9^2 + 12^2 = x^2$
$81 + 144 = x^2$
$\sqrt{225} = \sqrt{x^2}$
$x = 15$

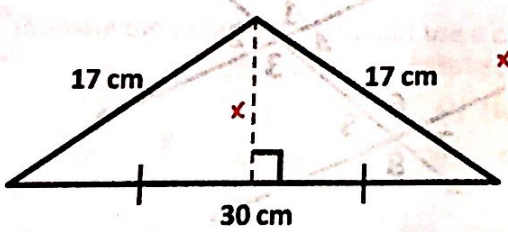
$9 + 12 + 15 = \boxed{36\text{cm}}$

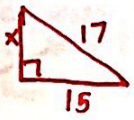
39) Find the distance between the points (4, 7) and (8, -5).



$4^2 + 12^2 = d^2$
$16 + 144 = d^2$
$\sqrt{160} = \sqrt{x^2}$
$\boxed{x \approx 12.6 \text{ units}}$

38) Find the area of the triangle.





$x^2 + 15^2 = 17^2$
$x^2 + 225 = 289$
$-225 \quad -225$
$\sqrt{x^2} = \sqrt{64}$
$x = 8$

$\text{Area} = \frac{\text{base} \cdot \text{height}}{2} = \frac{30 \cdot 8}{2} = \frac{240}{2}$

$\boxed{A = 120 \text{ cm}^2}$