Name: _____
SGL 8th Grade Math

Due Date: 01-02-20
circle your class: 801 802 803 804

Homework # 14

Packet Self-Evaluation: 1 – 2 -- 3 – 4 – 5 (circle a score)

HW Rubric	1 point	2	3 points	4	5 points
• All problems complete?	Very few		Some		All complete
• All annotation and work shown?	Very few		Some		All shown
• Is math accurate?	Less than 50%		About 75%		90%-100%

Name: _____

PROPORTIONAL & NON- PROPORTIONAL RELATIONSHIPS

"TO BE OR NOT TO BE PROPORTIONAL"

Dylan makes $336 for 32 hours of work, and Angela makes $420 for 42 hours of work.

1] How much do Dylan and Angela each make per hour?

2] Is Dylan's wage for 25 hours proportional to Amber's wage for 42 hours? Why or why not?

To determine proportionality between two ratios or rates,

_____

_____.

Find the ratio of y to x for Table 1 and Table 2, simplify the fraction to simplest form, and answer the questions that follow.

Table 1:

Number of Hours	Total Cost ($)	Ratio: $\frac{y}{x}$
1	$75	
2	$120	
3	$165	
4	$210	
5	$255	

Table 2:

Number of Hours	Total Cost ($)	Ratio: $\frac{y}{x}$
1	$45	
2	$90	
3	$135	
4	$180	
5	$225	

3] Which table shows a proportional relationship?

4] What makes it a proportional relationship?

To determine proportionality from a table,

_____.

Below are the graphs for the tables in the previous section. Use the graphs to determine proportionality.

Table 1:

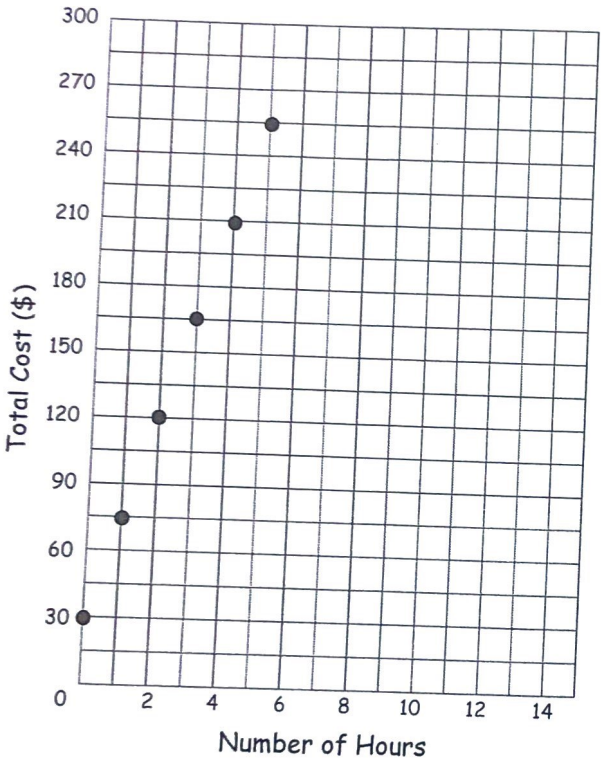
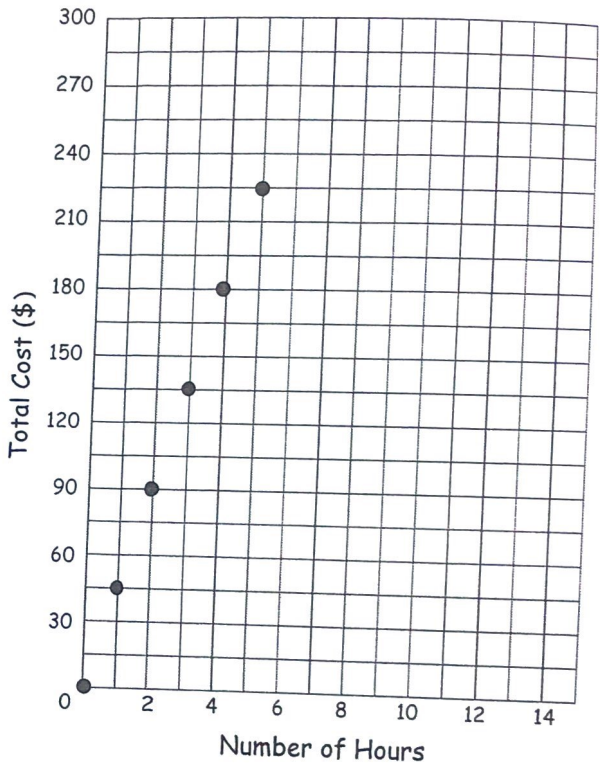


Table 2:



5] Which graph shows a proportional relationship?

6] What makes it a proportional relationship?

Conclusion:

To determine proportionality from a graph,

_____

_____

_____.

Determine which of the following tables represent proportional relationships.

1)

x	y
1	-3
2	-6
3	-9
4	-12
5	-15

8)

x	y
-4	-8
-2	-4
0	0
2	4
4	8

9)

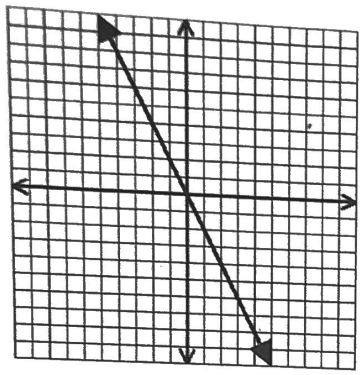
x	y
-1	-6
0	-5
1	-3
2	0
3	4

10)

x	y
-1	-1.5
1	1.5
3	4.5
5	7.5
7	10.5

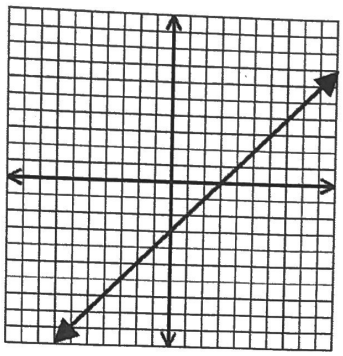
Determine which of the following graphs represent proportional relationships. Circle the appropriate response.

11.



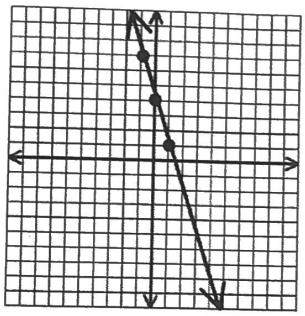
Proportional non-proportional

12.



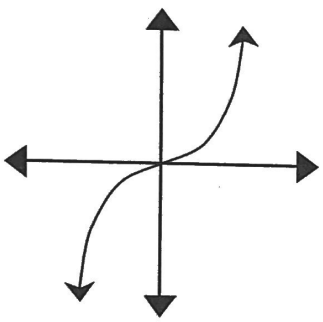
Proportional non-proportional

13.



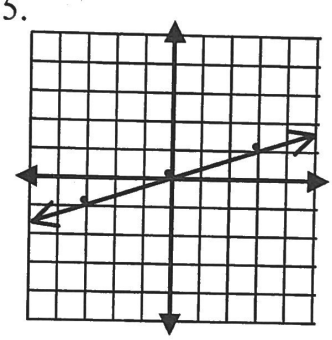
Proportional non-proportional

14.



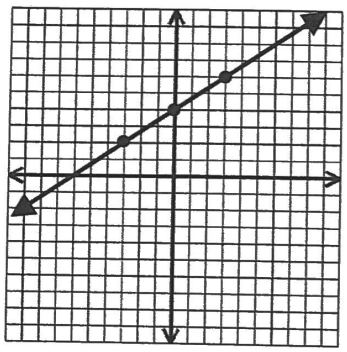
Proportional non-proportional

15.



Proportional non-proportional

16.



Proportional non-proportional

17. Is the following relationship proportional? Explain.

Number of Movie Tickets (x)	Total Cost of Tickets (y)	$\frac{y}{x}$
1	-6	
2	-12	
3	-18	
4	-24	

18. How is a proportional relationship different from a non-proportional relationship?

Exponents and Multiplication

Simplify. Your answer should contain only positive exponents.

1) $4^2 \cdot 4^2$

2) $4 \cdot 4^2$

3) $3^2 \cdot 3^2$

4) $2 \cdot 2^2 \cdot 2^2$

5) $2n^4 \cdot 5n^4$

6) $6r \cdot 5r^2$

7) $2n^4 \cdot 6n^4$

8) $6k^2 \cdot k$

9) $5b^2 \cdot 8b$

10) $4x^2 \cdot 3x$

11) $6x \cdot 2x^2$

12) $6x \cdot 6x^3$

13) $7v^3 \cdot 10u^3v^5 \cdot 8uv^3$

14) $9xy^2 \cdot 9x^5y^2$

15) $6m^3n^3 \cdot 8m^2n^3$

16) $6x^2 \cdot 6x^3y^4$

17) $7u^2v^5 \cdot 9uv^3$

18) $uv \cdot 4uv^5$

19) $10xy^3 \cdot 8x^5y^3$

20) $3u^4v^5 \cdot 7u^2v^3$

21) $(2x^2)^2$

22) $(p^4)^4$

23) $(k^3)^4$

24) $(7k)^2$

25) $(x^2)^3$

26) $(2b^2)^4$

Solving Multi-Step Equations

Solve each equation.

1) $4n - 2n = 4$

2) $-12 = 2 + 5v + 2v$

3) $3 = x + 3 - 5x$

4) $x + 3 - 3 = -6$

5) $-12 = 3 - 2k - 3k$

6) $-1 = -3r + 2r$

7) $6 = -3(x + 2)$

8) $-3(4r - 8) = -36$

9) $24 = 6(-x - 3)$

10) $75 = 3(-6n - 5)$

11) $-3(1+6r)=14-r$

12) $6(6v+6)-5=1+6v$

13) $-4k+2(5k-6)=-3k-39$

14) $-16+5n=-7(-6+8n)+3$

15) $10p+9-11-p=-2(2p+4)-3(2p-2)$

16) $-10n+3(8+8n)=-6(n-4)$

17) $10(x+3)-(-9x-4)=x-5+3$

18) $12(2k+11)=12(2k+12)$

19) $-12(x-12)=-9(1+7x)$

20) $-11+10(p+10)=4-5(2p+11)$

Critical thinking question:

21) Explain two ways you could solve $20=5(-3+x)$

Systems of Equations: Substitution

Solve each system by substitution.

1) $y = 2x + 2$
$y = 0$

2) $y = x - 6$
$y = 8x + 1$

3) $y = -2x + 4$
$y = 6x - 20$

4) $y = 8$
$y = x + 1$

5) $y = x - 5$
$y = -7x + 11$

6) $4x - 4y = 0$
$y = 2x + 6$

7) $y = -3x - 19$
$5x + 8y = 0$

8) $y = 5x - 3$
$-x + 7y = -21$

ve each system by Elimination.

) $x - 8y = 1$
$-3x - 6y = -3$

8) $2x + 14y = 4$
$x + 7y = 7$

9) $6x + y = -1$
$-6x - 4y = 4$

10) $2x + y = -3$
$-6x - 3y = -2$

11) $-3x + 12y = 9$
$x - 4y = -3$

12) $3x + 6y = 0$
$x + 2y = 0$

Systems of Equations

Solve each system by elimination.

1) $3x + 5y = 1$
$-6x - 10y = 14$

2) $-3x + 4y = 3$
$-12x + 16y = 8$

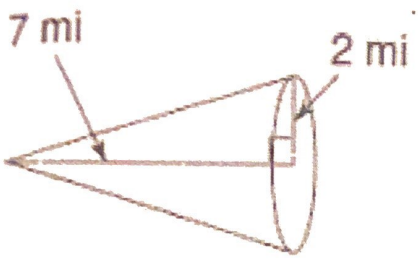
3) $7x + 3y = 0$
$14x + 6y = 0$

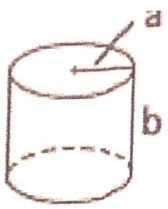
4) $4x + 16y = 16$
$-2x - 8y = -6$

5) $-16x - 20y = 12$
$-8x - 10y = 6$

6) $-7x - 2y = 0$
$14x + 7y = 0$

Find the volume of each shape in terms of π.





a = 8 yd

b = 56 yd

A sphere with a diameter of 2 ft.

A cylinder with a radius of 4 yd and a volume of 80 yd. (FIND THE HEIGHT.)

Find the total volume. (Hint: add)