

Name _____

Rising 8th Grade Summer 2019 Math Packets

This math packet has been designed to reinforce skills we learned in this year, in order to prepare you for the upcoming school year. It is **essential** that you work on this summer packet throughout the summer in order to practice your math skills and prepare for the 8th grade.

If a you lose or damage your summer packet, a copy of the packet can be picked up from the office or you may email Ms. Canady to request that another copy be sent to you (acanady@calibercma.org).

If you need help with any part of the packet, please any notes you have or go to Khan Academy for helpful videos and information (7th Grade Illustrative Mathematics).

Please complete at least five problems from each page. Be sure to show all your steps clearly (packets turned in with answers and no work will not receive credit).

If you need more space, you may use extra paper and attach it here.

Packets are due the first week of school (Week of August 26th).

~ ENJOY YOUR SUMMER!! ~

Multiply by Positive Powers of Ten (A)

Find each product.

Example

$$2.039 \times 1,000 = 2,039$$

$$\boxed{2,039.0}$$

$$2.45 \times 100 =$$

$$5.3381 \times 10 =$$

$$6.6 \times 1,000 =$$

$$7.6309 \times 100 =$$

$$7.3 \times 10 =$$

$$4.9 \times 10 =$$

$$6.442 \times 10 =$$

$$7.026 \times 100 =$$

$$8.15 \times 10 =$$

$$1.5444 \times 10 =$$

$$2.387 \times 100 =$$

$$5.146 \times 1,000 =$$

$$3.081 \times 100 =$$

$$2.966 \times 100 =$$

$$8.05 \times 1,000 =$$

$$7.828 \times 1,000 =$$

$$0.52 \times 1,000 =$$

$$2.06 \times 1,000 =$$

$$2.2 \times 1,000 =$$

Simplify Fractions (A)

Simplify each fraction to its lowest terms.

Example

$$\frac{9}{18} = \boxed{\frac{1}{2}}$$
$$\frac{9}{18} \div \frac{9}{9} = \frac{1}{2}$$

$\frac{4}{16} =$

$\frac{18}{36} =$

$\frac{20}{40} =$

$\frac{70}{80} =$

$\frac{18}{24} =$

$\frac{5}{40} =$

$\frac{21}{36} =$

$\frac{6}{9} =$

$\frac{21}{56} =$

$\frac{9}{36} =$

$\frac{9}{45} =$

$\frac{6}{42} =$

$\frac{14}{35} =$

$\frac{24}{36} =$

$\frac{10}{12} =$

$\frac{36}{45} =$

$\frac{4}{24} =$

$\frac{12}{21} =$

$\frac{63}{77} =$

$\frac{12}{15} =$

$\frac{30}{40} =$

$\frac{32}{48} =$

$\frac{42}{77} =$

$\frac{18}{36} =$

$\frac{28}{42} =$

$\frac{12}{24} =$

$\frac{12}{15} =$

$\frac{40}{60} =$

$\frac{12}{24} =$

$\frac{6}{18} =$

$\frac{36}{40} =$

*To divide by a fraction, multiply by the reciprocal

Dividing Fractions (A)

Find the value of each expression in lowest terms.

1. $\frac{1}{7} \div \frac{8}{3}$

5. $1\frac{1}{10} \div 1\frac{4}{7}$

9. $\frac{8}{3} \div \frac{20}{9}$

$\frac{1}{7} \cdot \frac{3}{8} = \boxed{\frac{3}{56}}$

Example

2. $\frac{1}{6} \div \frac{5}{2}$

6. $\frac{1}{2} \div 1\frac{3}{7}$

10. $\frac{13}{4} \div \frac{12}{5}$

3. $\frac{19}{9} \div 6\frac{2}{3}$

7. $\frac{17}{4} \div 3\frac{1}{3}$

11. $\frac{1}{3} \div \frac{2}{3}$

4. $\frac{1}{10} \div \frac{1}{6}$

8. $1\frac{4}{9} \div \frac{4}{9}$

12. $\frac{5}{9} \div 2\frac{1}{6}$

Subtracting Fractions (A)

Example

Find the value of each expression in lowest terms.

$$1. \frac{9}{2} - \frac{3}{2} = \boxed{3}$$

$$5. \frac{15}{2} - \frac{5}{14}$$

$$9. \frac{1}{4} - \frac{3}{20}$$

$$\frac{9}{2} - \frac{3}{2} = \frac{6}{2}$$

$$\frac{6}{2} \div \frac{2}{2} = \frac{3}{1} = 3$$

$$2. \frac{29}{2} - \frac{7}{2}$$

$$6. \frac{33}{19} - \frac{4}{19}$$

$$10. \frac{21}{5} - \frac{1}{5}$$

$$3. \frac{40}{17} - \frac{1}{17}$$

$$7. \frac{4}{5} - \frac{7}{10}$$

$$11. \frac{13}{4} - \frac{13}{8}$$

$$4. \frac{13}{4} - \frac{37}{12}$$

$$8. \frac{22}{13} - \frac{4}{13}$$

$$12. \frac{31}{10} - \frac{3}{5}$$

Converting Fractions to Decimals (A)

Name: _____

Date: _____

Example

Convert each fraction to a decimal.

$$\frac{4}{6} = \boxed{0.\bar{6}}$$

$$\frac{4}{6} \div \frac{2}{2} = \frac{2}{3}$$

$$\frac{11}{12} =$$

$$\begin{array}{r} 0.666 \\ 3 \overline{) 20} \\ \underline{18} \\ 20 \\ \underline{18} \\ 2 \end{array}$$

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

$$\text{Example } \frac{14}{20} = \frac{5}{5} = \frac{70}{100} = \boxed{0.7}$$

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

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

$$\frac{2}{5} =$$

$$\frac{4}{5} =$$

$$\frac{8}{11} =$$

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

$$\frac{5}{12} =$$

$$\frac{7}{9} =$$

$$\frac{5}{7} =$$

$$\frac{8}{10} =$$

$$\frac{6}{10} =$$

$$\frac{3}{5} =$$

$$\frac{16}{20} =$$

$$\frac{2}{7} =$$

$$\frac{9}{10} =$$

$$\frac{3}{20} =$$

Comparing Decimals (A)

Compare each pair of decimals using a $<$, $>$ or $=$ sign.

Example

12.94	$<$	22.634	22.33	<input type="checkbox"/>	16.671	12.44	<input type="checkbox"/>	1.416
14.114	<input type="checkbox"/>	21.204	17.383	<input type="checkbox"/>	17.981	8.896	<input type="checkbox"/>	9.247
17.025	<input type="checkbox"/>	6.204	1.165	<input type="checkbox"/>	7.448	15.342	<input type="checkbox"/>	13.432
8.973	<input type="checkbox"/>	19.998	23.173	<input type="checkbox"/>	17.122	20.037	<input type="checkbox"/>	6.42
17.175	<input type="checkbox"/>	17.708	1.913	<input type="checkbox"/>	5.615	13.17	<input type="checkbox"/>	20.215
11.437	<input type="checkbox"/>	12.622	18.747	<input type="checkbox"/>	14.352	9.465	<input type="checkbox"/>	6.484
19.973	<input type="checkbox"/>	24.093	16.08	<input type="checkbox"/>	10.365	5.401	<input type="checkbox"/>	5.632
24.856	<input type="checkbox"/>	13.032	13.832	<input type="checkbox"/>	18.635	13.339	<input type="checkbox"/>	14.074
6.445	<input type="checkbox"/>	10.166	5.591	<input type="checkbox"/>	19.649	16.774	<input type="checkbox"/>	13.613
22.792	<input type="checkbox"/>	1.434	4.427	<input type="checkbox"/>	12.918	24.135	<input type="checkbox"/>	9.517
4.514	<input type="checkbox"/>	13.698	10.321	<input type="checkbox"/>	8.359	24.633	<input type="checkbox"/>	2.891
16.272	<input type="checkbox"/>	12.719	18.067	<input type="checkbox"/>	20.285	24.409	<input type="checkbox"/>	1.029
17.881	<input type="checkbox"/>	14.219	2.31	<input type="checkbox"/>	12.152	11.975	<input type="checkbox"/>	23.6
16.177	<input type="checkbox"/>	24.057	5.981	<input type="checkbox"/>	3.859	19.048	<input type="checkbox"/>	22.876
9.934	<input type="checkbox"/>	1.584	21.506	<input type="checkbox"/>	5.652	1.975	<input type="checkbox"/>	13.656
9.526	<input type="checkbox"/>	23.303	4.306	<input type="checkbox"/>	15.423	6.19	<input type="checkbox"/>	7.719
20.903	<input type="checkbox"/>	12.958	14.671	<input type="checkbox"/>	7.487	6.149	<input type="checkbox"/>	19.271
21.798	<input type="checkbox"/>	21.956	9.314	<input type="checkbox"/>	5.022	1.359	<input type="checkbox"/>	9.056
18.316	<input type="checkbox"/>	9.209	10.757	<input type="checkbox"/>	20.163	23.506	<input type="checkbox"/>	4.984
6.208	<input type="checkbox"/>	12.026	22.813	<input type="checkbox"/>	19.692	13.217	<input type="checkbox"/>	9.635

Rounding Decimals (A)

Round each decimal number to the nearest place indicated.

Example

- | | | | | | |
|----|--------|--------------------------|-----|--------|--------------|
| 1. | 0.43 | <u>0</u>
whole number | 11. | 7.865 | whole number |
| 2. | 6.02 | tenth | 12. | 5.2182 | thousandth |
| 3. | 6.651 | whole number | 13. | 5.6967 | thousandth |
| 4. | 0.202 | hundredth | 14. | 2.9 | whole number |
| 5. | 7.22 | whole number | 15. | 4.0 | whole number |
| 6. | 0.660 | tenth | 16. | 7.46 | tenth |
| 7. | 8.28 | tenth | 17. | 2.39 | tenth |
| 8. | 9.87 | whole number | 18. | 3.896 | whole number |
| 9. | 7.0760 | hundredth | 19. | 7.8143 | whole number |
| | 3.629 | tenth | 20. | 9.3959 | hundredth |

Multiplying 2-Digit by 2-Digit Numbers with Various Decimal Places (A)

Name: _____

Date: _____

Calculate each product.

Example

$$\begin{array}{r} 2.3 \\ \times 4.6 \\ \hline 138 \\ 920 \\ \hline 1058 \end{array}$$

$$\begin{array}{r} 2.3 \\ \times 4.6 \\ \hline \end{array}$$

$$\begin{array}{r} 0.67 \\ \times 0.50 \\ \hline \end{array}$$

$$\begin{array}{r} 0.27 \\ \times 73 \\ \hline \end{array}$$

$$\begin{array}{r} 2.8 \\ \times 32 \\ \hline \end{array}$$

$$\begin{array}{r} 3.1 \\ \times 94 \\ \hline \end{array}$$

$$\begin{array}{r} 6.5 \\ \times 6.6 \\ \hline \end{array}$$

$$\begin{array}{r} 3.3 \\ \times 0.89 \\ \hline \end{array}$$

$$\begin{array}{r} 48 \\ \times 48 \\ \hline \end{array}$$

$$\begin{array}{r} 5.4 \\ \times 0.19 \\ \hline \end{array}$$

$$\begin{array}{r} 47 \\ \times 14 \\ \hline \end{array}$$

$$\begin{array}{r} 5.8 \\ \times 4.3 \\ \hline \end{array}$$

$$\begin{array}{r} 0.46 \\ \times 0.50 \\ \hline \end{array}$$

$$\begin{array}{r} 53 \\ \times 7.8 \\ \hline \end{array}$$

$$\begin{array}{r} 3.0 \\ \times 0.49 \\ \hline \end{array}$$

$$\begin{array}{r} 87 \\ \times 0.21 \\ \hline \end{array}$$

$$\begin{array}{r} 47 \\ \times 0.12 \\ \hline \end{array}$$

$$\begin{array}{r} 84 \\ \times 18 \\ \hline \end{array}$$

$$\begin{array}{r} 6.7 \\ \times 0.95 \\ \hline \end{array}$$

$$\begin{array}{r} 0.83 \\ \times 8.9 \\ \hline \end{array}$$

$$\begin{array}{r} 1.2 \\ \times 0.54 \\ \hline \end{array}$$

$$\begin{array}{r} 0.13 \\ \times 4.3 \\ \hline \end{array}$$

$$\begin{array}{r} 0.89 \\ \times 0.34 \\ \hline \end{array}$$

$$\begin{array}{r} 0.31 \\ \times 0.93 \\ \hline \end{array}$$

$$\begin{array}{r} 8.1 \\ \times 16 \\ \hline \end{array}$$

$$\begin{array}{r} 13 \\ \times 0.76 \\ \hline \end{array}$$

*Think about or use a number line to help if you get stuck.

Comparing Integers (A)

Compare the pairs of integers using $<$, $>$, or $=$

Example

$-10 < 51$

$66 \square 3$

$43 \square 83$

$-24 \square 82$

$76 \square 13$

$99 \square -84$

$-33 \square -90$

$-37 \square -37$

$-69 \square -79$

$28 \square 7$

$-24 \square 61$

$-36 \square -88$

$18 \square 80$

$-27 \square -52$

$-49 \square -69$

$42 \square 98$

$-12 \square -81$

$88 \square -99$

$47 \square -44$

$-8 \square -45$

$-61 \square 57$

$46 \square -26$

$13 \square -1$

$39 \square 51$

$-44 \square 1$

$92 \square 35$

$-56 \square -57$

$-77 \square 37$

$-5 \square -21$

$78 \square -96$

$-99 \square -94$

$34 \square -60$

$-14 \square -21$

$-1 \square -37$

$6 \square -78$

$34 \square -43$

$1 \square 12$

$4 \square -4$

$-66 \square -13$

$-66 \square -45$

* Think about or use a number line to help if you get stuck.

Integer Addition (A)

Name: _____

Date: _____

These questions result in positive sums.

Example

$7 + (-6) = 1$

$5 + (-1) =$

$3 + (-2) =$

$9 + (-6) =$

+++++

$4 + (-1) =$

$8 + (-7) =$

$5 + (-4) =$

$9 + (-4) =$

$8 + (-6) =$

$8 + (-3) =$

$5 + (-2) =$

$6 + (-3) =$

$3 + (-1) =$

$8 + (-5) =$

$7 + (-4) =$

$6 + (-5) =$

$9 + (-8) =$

$8 + (-2) =$

$8 + (-1) =$

$8 + (-4) =$

These questions result in negative sums.

$2 + (-8) =$

$1 + (-3) =$

$8 + (-9) =$

$5 + (-9) =$

$1 + (-8) =$

$3 + (-7) =$

$2 + (-3) =$

$3 + (-4) =$

$1 + (-7) =$

$5 + (-7) =$

$3 + (-8) =$

$1 + (-5) =$

$1 + (-4) =$

$2 + (-4) =$

$3 + (-5) =$

$4 + (-8) =$

$4 + (-7) =$

$4 + (-5) =$

$5 + (-6) =$

$2 + (-9) =$

These questions could have negative, positive or zero sums.

$5 + (-2) =$

$8 + (-7) =$

$7 + (-2) =$

$2 + (-7) =$

$3 + (-7) =$

$6 + (-7) =$

$7 + (-9) =$

$6 + (-8) =$

$4 + (-4) =$

$7 + (-5) =$

$5 + (-7) =$

$7 + (-3) =$

$4 + (-9) =$

$9 + (-4) =$

$3 + (-2) =$

$9 + (-2) =$

$1 + (-5) =$

$8 + (-1) =$

$3 + (-6) =$

$9 + (-1) =$

All Operations with Integers (A)

Use an integer strategy to find each answer.

Example

$$(-160) \div (-8) = \boxed{20}$$

$$20 - (-19) =$$

$$(-20) \div (-20) =$$

$$(-4) - 19 =$$

$$9 + (-25) =$$

$$(-21) + (-7) =$$

$$(-12) \times 21 =$$

$$11 \times (-20) =$$

$$12 + 9 =$$

$$7 + (-13) =$$

$$(-3) \times (-16) =$$

$$125 \div (-25) =$$

$$(-220) \div (-22) =$$

$$(-15) + 1 =$$

$$(-20) - 17 =$$

$$(-11) - (-19) =$$

$$7 \times 11 =$$

$$12 - (-4) =$$

$$72 \div 18 =$$

$$(-22) - (-24) =$$

$$(-5) \times (-9) =$$

$$(-13) \times (-5) =$$

$$(-11) \times 18 =$$

$$150 \div (-25) =$$

$$(-3) - 14 =$$

$$(-10) + 3 =$$

$$(-16) \times (-18) =$$

$$(-16) - 21 =$$

$$(-264) \div (-12) =$$

$$3 \times 25 =$$

Order of Operations (A)

Name: _____

Date: _____

Solve each expression using the correct order of operations.

Example.

$$(-10) \times 2 - (-7)^2$$

$$(-10) \cdot 2 - (49)$$

$$-20 - 49$$

$$-20 + (-49)$$

$$\boxed{-69}$$

$$(-8) \times (-6) - (-5)^2$$

$$6 \times 5 + (-4)^2$$

$$8 - 5 \times 4^2$$

$$2^2 \times (-9) - 9$$

$$3 \times (9 + (-8))^2$$

$$5 - (-4) \times (-3)^2$$

$$10 \times (-5) + (-6)^2$$

$$(7 - 8) \times 2^2$$

$$(-7) \times (-4) + 2^3$$

Order of Operations with Fractions (A)

Name: _____

Date: _____

Solve each expression using the correct order of operations.

$$\left(\frac{3}{5} - \frac{1}{6}\right) \div \left(-\frac{1}{3}\right)$$

$$\left(\left(-\frac{1}{3}\right) + \frac{5}{8}\right) \div \frac{8}{9}$$

$$\left(\left(-\frac{1}{6}\right) - \left(-\frac{5}{8}\right)\right) \times \frac{1}{2}$$

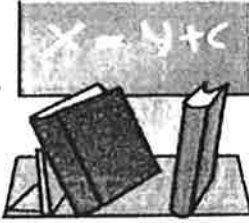
$$\left(-\frac{1}{2}\right) - \left(-\frac{1}{5}\right)^2$$

$$\left(-\frac{2}{9}\right) \times \left(\left(-\frac{5}{9}\right) + \frac{5}{6}\right)$$

$$\left(-\frac{1}{8}\right) \times \left(-\frac{2}{3}\right) + \frac{5}{6}$$

Name: _____

Basic Algebra



Evaluate each expression.

$$a = 3, \quad b = 5, \quad c = 6$$

Example

1. $a + 5$
 $(3) + 5$

8

2. $15 - c$

3. $4b$

4. $\frac{18}{c}$

5. $20 - a$

6. $11b$

7. $\frac{45}{b}$

8. $a - 2$

9. $a + b + c$

10. $\frac{c}{a}$

$$p = 12, \quad q = 2, \quad r = 30$$

11. $q50$

12. $\frac{r}{q}$

13. $p + 4 + 6$

14. $p - 7$

15. $10r$

16. $\frac{r}{10}$

17. $\frac{p}{4}$

18. $r - p$

19. $r - q$

20. $\frac{48}{p}$

Now try this:

Write five of your own algebraic expressions on the back of this paper. Have a friend solve them.

Distributive Property (A)

Use the distributive property to simply each expression.

Example

$$2(4 + 9w)$$

$$2 \cdot 4 + 2 \cdot 9w$$

$$\boxed{8 + 18w}$$

$$-8(6x + 3)$$

$$-4(-4d - 5)$$

$$-6(8p + 3)$$

$$2(3v - 8)$$

$$(2 - 5m)(-5)$$

$$4(-6z + 4)$$

$$-9(n - 4)$$

$$(-5d + 1)(-2)$$

$$-4(9k + 9)$$

$$2(-5 - 7j)$$

$$(3b - 2)(-3)$$

$$-3(3 - 8j)$$

$$-(-5 - 3v)$$

$$-8(2 + 9v)$$

$$-9(8 - 2h)$$

$$(-5f + 8)4$$

$$(7x - 8)(-1)$$

$$-(6 - 4p)$$

$$9(8 + 5t)$$

Simple Linear Equations (A)

Solve for each variable.

1. $8 + \frac{2}{z} = 10$

$-8 \quad -8$

$(\frac{1}{2}) \cdot \frac{2}{z} = 2 \cdot (\frac{1}{2})$

$z = 1$

2. $3v - 4 = 5$

6. $9x = 9$

11. $\frac{2}{v} + 7 = 9$

7. $\frac{v}{5} = 7$

12. $7z = 63$

3. $\frac{z}{5} + 10 = 13$

8. $\frac{b}{5} = 7$

13. $\frac{6}{c} = 2$

4. $\frac{12}{v} = 2$

9. $\frac{v}{2} = 3$

14. $\frac{42}{z} = 7$

5. $3c - 6 = 21$

10. $\frac{90}{x} + 3 = 12$

15. $\frac{24}{b} = 4$

$$13) -15 = -4m + 5$$

$$14) 10 - 6v = -104$$

$$15) 8n + 7 = 31$$

$$16) -9x - 13 = -103$$

$$17) \frac{n+5}{-16} = -1$$

$$18) -10 = -10 + 7m$$

$$19) -10 = 10(k - 9)$$

$$20) \frac{m}{9} - 1 = -2$$

$$21) 9 + 9n = 9$$

$$22) 7(9 + k) = 84$$

$$23) 8 + \frac{b}{-4} = 5$$

$$24) -243 = -9(10 + x)$$

$$\text{Part} = \frac{\%}{100} \cdot \text{whole}$$

(as a decimal)

Percent Calculations (A)

Calculate the percent or value requested.

1. What is 30% of 770?

$$X = 770(0.3)$$

$$X = 231$$

2. What percent of 160 is 152?

3. What is 5% of 280?

4. 21 is 75% of what amount?

5. What is 55% of 780?

6. What is 95% of 740?

7. What percent of 920 is 414?

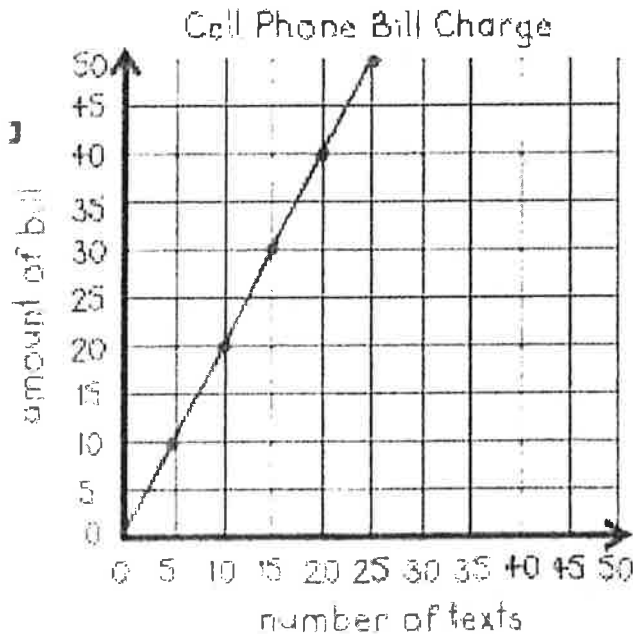
8. What percent of 470 is 329?

9. What is 25% of 456?

10. What is 35% of 180?

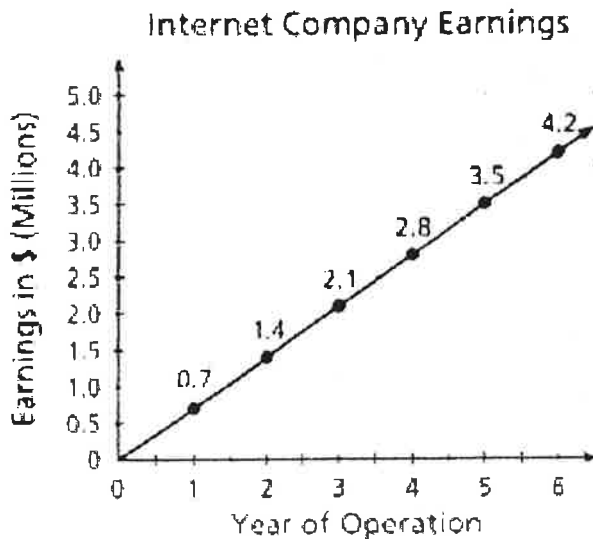
Ratios & Proportions 7th Grade Unit Review:

The graph below shows the monthly cost of a cell phone bill depending on how many text messages are sent. Use the graph to answer questions 1-3.



- 1.) Is the cost of the cell phone bill directly proportional to the number of text messages sent? Explain using two pieces of evidence to justify your answer.
- 2.) What is the constant of proportionality for this relationship?
- 3.) Write an equation that could be used to represent the cost of the bill (y) after x text messages have been sent.

The graph below displays the amount of money an Internet company will make after a given number of years of operation. Use the graph to answer questions 4-6.



- 4.) Explain what the coordinate $(1, 0.7)$ represents in this situation.
- 5.) If an Internet company were in operation for 16 years, how many millions of dollars can it expect to make?
- 6.) If an Internet company were in operation for 4 years, but had to pay 30% of its earning in taxes, how much money would it have left after taxes? Show your work.

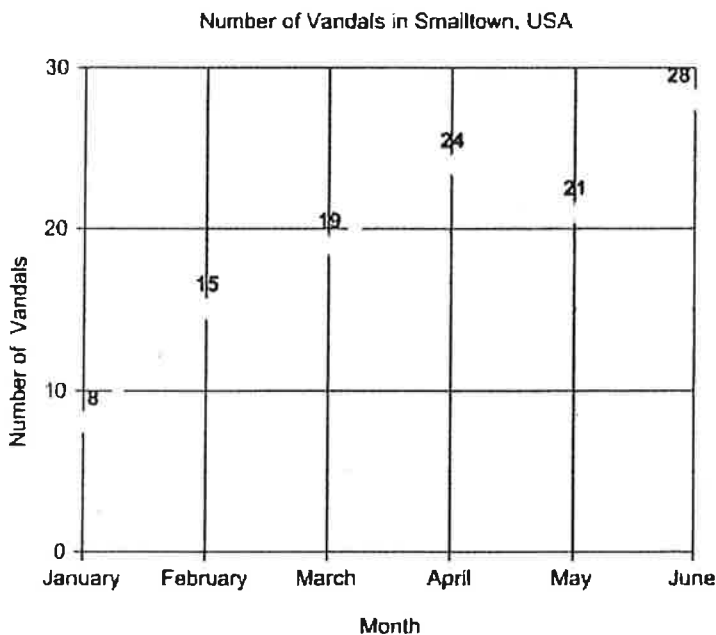
13.) Here is a recipe for making 4 pancakes:

- 6 tablespoons flour
- $\frac{1}{4}$ pint milk
- $\frac{1}{4}$ pint water
- 1 pinch salt
- 1 egg



If you want to make 10 pancakes, how much of each ingredient will you need?

The graph below shows the number of acts of vandalism in Smalltown, USA during six different months. Use the information in the graph to answer questions 14 -16.



14.) By what percent did the number of acts of vandalism change by from January to February?

15.) Calculate the percent decrease in the number of vandals from April to May.

16.) What was the percent increase in number of vandals from February to April?

Decide whether each table below represents a proportional relationship, and explain how you know.

17.)

x	4	8	12	16
y	1	2	3	4

18.)

x	1	2	3	4
y	-2	0	2	4

19.)

x	-1	0	1	2
y	-2	-1	0	1

20.)

x	y
-2	-8
-1	-6.5
0	-5
1	-3.5
2	-2

21.)

x	y
-2	4
-1	2
0	0
1	2

22.)

x	y
-3	-9
-2	-6
-1	-3
0	0
1	3
2	6
3	9