

# Jeddah Knowledge International School



## MATH SUMMER PACK 2021-2022 GRADE 7 GOING TO GRADE 8

*Name:* \_\_\_\_\_

*Section:* \_\_\_\_\_



Name: \_\_\_\_\_

Grade 7 \_\_\_\_

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**Decimal Numbers**

**Question 1: Write in expanded form**

- I. 66.67
- II. 89.5223
- III. 1092.809

**Question 2: State the value of the 6 in**

- I. 62.11
- II. 44.06

**Question 3: Round 5.073636 to**

- I. The nearest whole number-----
- II. The nearest hundredth-----
- III. The nearest tenth -----

**Question 4: Write in ascending order:**

8.76, 8.67, 8.6

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**Question 5: Find**

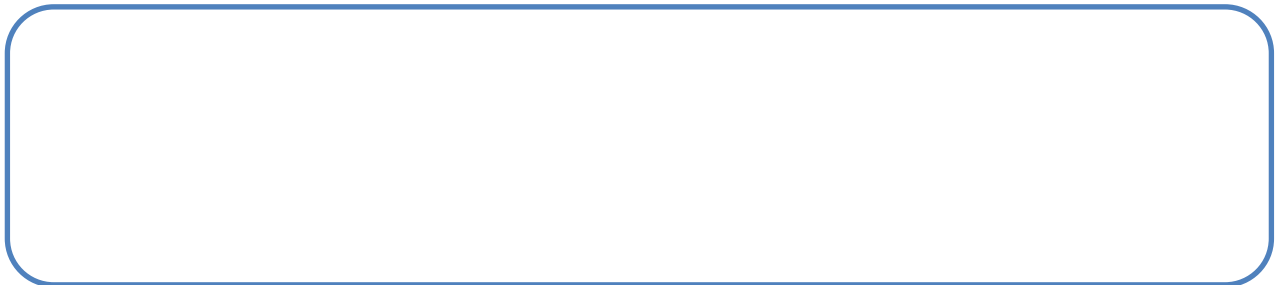
<b>I. <math>4.645+1.67</math></b>	<b>II. <math>2 - 0.99</math></b>
<b>III. <math>3.1 \times 1.9</math></b>	<b>IV. <math>0.96 \div 0.12</math></b>
<b>V. <math>70.96 \div 1000</math></b>	<b>VI. <math>0.008 \times 10000</math></b>

**Question 6: Word problem**

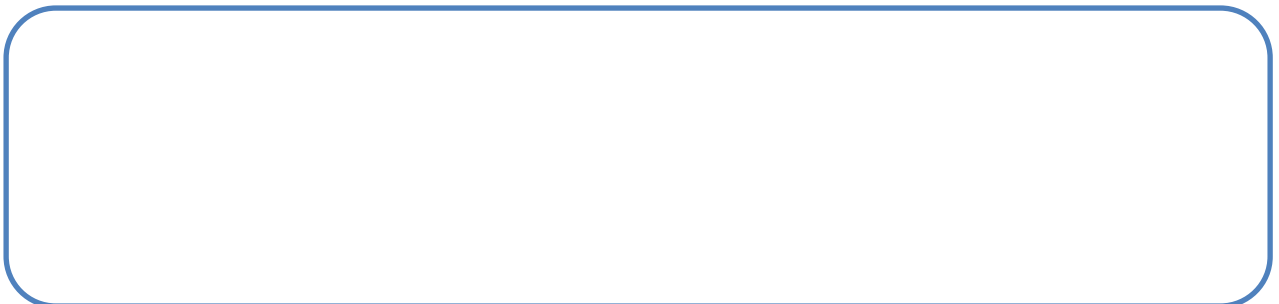
**1- Ron buys 200 bags of sand, each weighing 4.5 kg. Find the total mass of bags?**



**2- A man is 1.3 times as tall as his daughter, who is 136cm tall. Determine the height of the man**



**3. Rob purchased picnic food for \$33.20 to share with three of his friends. They plan to split the cost evenly between the four friends. How much does each person need to pay Rob?**



4. Leslie ordered 3 slices of pizza for \$1.95 each, a salad for \$2.25, and a soda for \$1.05. What was the total cost of her order?




5. Hanna's sales goal for the week is \$5,000. So far she has sold \$3,574.38 worth of merchandise. How much more does she need to sell to meet her goal?



6. Tom is cutting a piece of wood to make a shelf. He cut the wood to 3.5 feet, but it is too long to fit in the bookshelf he is making. He decides to cut 0.25 feet off the board. How long will the board be after he makes the cut?



- 7. Martha has \$20 to spend and would like to buy as many calculators as possible with the money. The calculators that she wants to buy are \$4.50 each. How much money will she have left over after she purchases the greatest possible number of calculators?**



- 8. Kelly plans to fence in her yard. The Fabulous Fence Company charges \$3.25 per foot of fencing and \$15.75 an hour for labour. If Kelly needs 350 feet of fencing and the installers work a total of 6 hours installing the fence, how much will she owe the Fabulous Fence Company?**



# Integers

## Question 1- Find:

A)  $2 + 3 =$  \_\_\_\_\_

B)  $4 + (-2) =$  \_\_\_\_\_

C)  $7 + (-4) =$  \_\_\_\_\_

D)  $-6 + 5 =$  \_\_\_\_\_

E)  $8 + 3 =$  \_\_\_\_\_

F)  $-5 + (-7) =$  \_\_\_\_\_

G)  $-2 + 4 =$  \_\_\_\_\_

H)  $6 + (-9) =$  \_\_\_\_\_

I)  $10 + (-2) =$  \_\_\_\_\_

J)  $14 + 5 =$  \_\_\_\_\_

K)  $-11 + (-6) =$  \_\_\_\_\_

L)  $-9 + 14 =$  \_\_\_\_\_

M)  $-22 + 7 =$  \_\_\_\_\_

N)  $-14 + (-14) =$  \_\_\_\_\_

O)  $25 + (-10) =$  \_\_\_\_\_

P)  $-32 + 32 =$  \_\_\_\_\_

Q)  $19 + (-13) =$  \_\_\_\_\_

R)  $-27 + 38 =$  \_\_\_\_\_

S)  $-33 + (-19) =$  \_\_\_\_\_

T)  $27 + (-29) =$  \_\_\_\_\_

## Question2- Order of operation

1.  $3 - (2^3 \div 1) + 5$

2.  $(6^3 - 9 - 1)$

3.  $(5 + 7^3) \div 7 \times 7$

4.  $(2 - 7) - 8 - 3$

5.  $(6 + 7^2) + 1$

6.  $4^3 - (2 + 2^3) \times 5$

7.  $(6 - 1 + 7)$

8.  $(3^2 - 3^2) + 5$

9.  $(7 + 8 - 4^2) \times 2 + 1$

10.  $6 - (8 + 3^3) - 4$

**Question 3: Word problem**

1- The temperatures of eight world cities are shown below.

<b>Toronto:</b> 7°C	<b>New York:</b> 9°C	<b>Harare:</b> 0°C	<b>Dubai:</b> 13°C
<b>Auckland:</b> -2°C	<b>Reykjavik:</b> -7°C	<b>Tokyo:</b> 4°C	<b>Helsinki:</b> -3°C

Use the table and your thermometer to answer the questions below:

- a) Which city is the coldest? \_\_\_\_\_
- b) Which city is 3 degrees colder than Toronto? \_\_\_\_\_
- c) Which city is 5 degrees warmer than Tokyo? \_\_\_\_\_
- d) Which city is 13 degrees colder than Dubai? \_\_\_\_\_
- e) Which city is 2 degrees colder than Harare? \_\_\_\_\_
- f) Which city is 1 degree warmer than Helsinki? \_\_\_\_\_
- g) Which city is 7 degrees colder than Tokyo? \_\_\_\_\_
- h) What is the difference in temperature between Reykjavik and Auckland? \_\_\_\_\_
- i) What is the difference in temperature between New York and Reykjavik? \_\_\_\_\_



2. The table below shows how the temperatures changed 6 months later.

<b>Toronto:</b> fell by 10°C	<b>New York:</b> fell by 8°C	<b>Harare:</b> rose by 8°C	<b>Dubai:</b> fell by 5°C
<b>Auckland:</b> rose by 9°C	<b>Reykjavik:</b> fell by 6°C	<b>Tokyo:</b> fell by 6°C	<b>Helsinki:</b> rose by 4°C

*Use this information to fill in the table below showing the temperatures in 6 months time.*

<b>Toronto:</b> ___°C	<b>New York:</b> ___°C	<b>Harare:</b> ___°C	<b>Dubai:</b> ___°C
<b>Auckland:</b> ___°C	<b>Reykjavik:</b> ___°C	<b>Tokyo:</b> ___°C	<b>Helsinki:</b> ___°C

3- Greg wants to lose 12kg. He initially lost 5kg, then gained 1kg per week for 3 weeks, then lost 2kg.

a) Find Greg's overall weight loss or gain

.....  
 .....  
 .....

b) How much weight must Greg now lose to reach his goal?

.....  
 .....  
 .....

# Operating Fractions

## Question 1. Adding and subtracting fractions:

a)  $\frac{2}{3} + \frac{4}{2} =$  \_\_\_\_\_

b)  $\frac{4}{3} + \frac{4}{5} =$  \_\_\_\_\_

c)  $\frac{3}{2} - \frac{1}{2} =$  \_\_\_\_\_

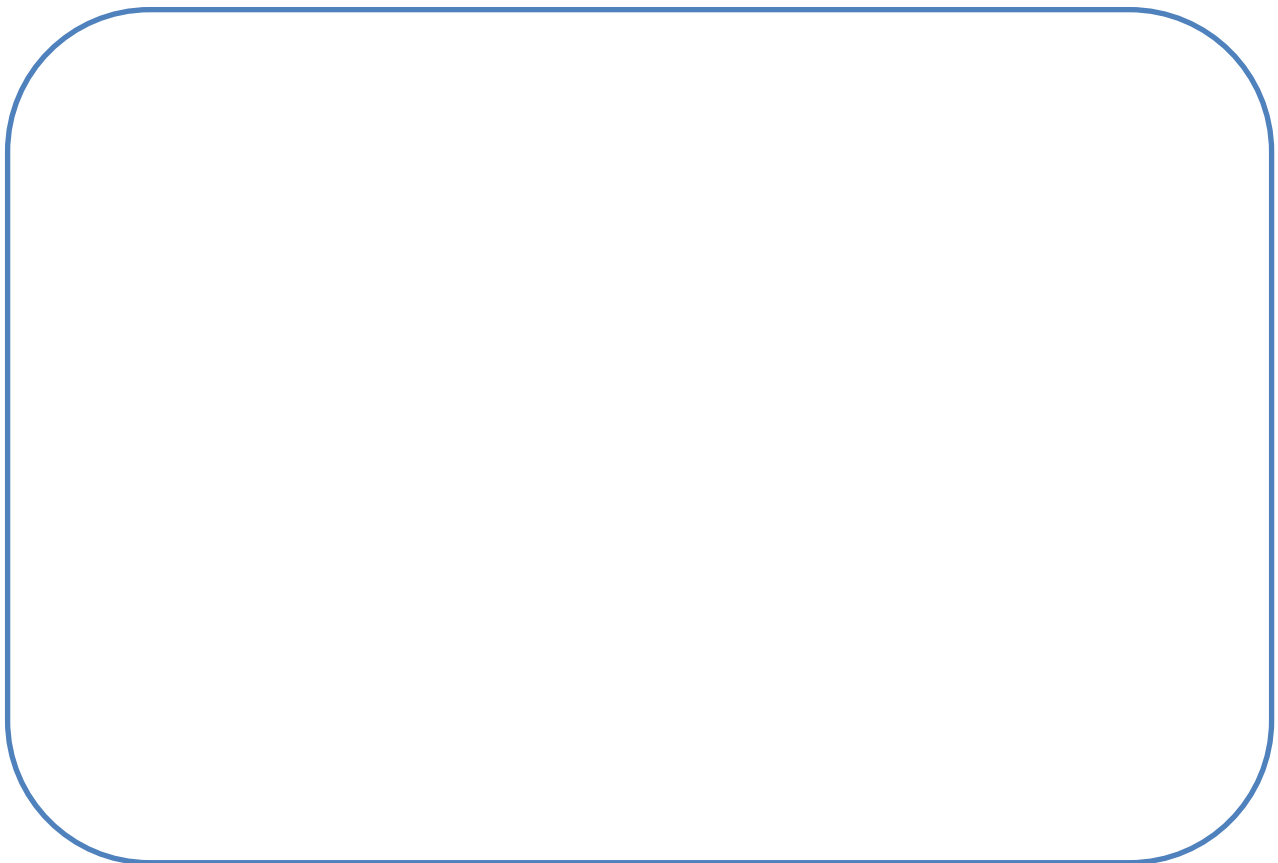
d)  $\frac{2}{3} - \frac{5}{6} =$  \_\_\_\_\_

e)  $5 - 3\frac{2}{3} =$  \_\_\_\_\_

f)  $1\frac{1}{4} + 3\frac{1}{16} =$  \_\_\_\_\_

g)  $\frac{7}{3} + \frac{9}{5} + \frac{1}{3} =$  \_\_\_\_\_

h)  $\frac{7}{4} - \frac{1}{3} - \frac{1}{6} =$  \_\_\_\_\_



**Question 2. Multiplying fractions:**

a)  $\frac{2}{5} \times \frac{3}{4} =$  \_\_\_\_\_

b)  $\frac{3}{7} \times \frac{21}{3} =$  \_\_\_\_\_

c)  $\frac{7}{3} \times \frac{27}{2} \times \frac{1}{7} =$  \_\_\_\_\_

e)  $(3\frac{1}{5})^2 =$  \_\_\_\_\_



**Question 3. Dividing fractions:**

a)  $\frac{7}{3} \div \frac{14}{15} =$  \_\_\_\_\_

b)  $\frac{6}{9} \div 3 =$  \_\_\_\_\_

c)  $5\frac{1}{2} \div 6\frac{1}{2} =$  \_\_\_\_\_

d)  $5\frac{1}{2} \div 2\frac{3}{4} =$  \_\_\_\_\_



# Interchanging Numbers between percents, fractions, and decimals

Percentage Fraction	Fraction	Decimal
	$\frac{2}{5}$	
		0.09
20%		
100%		
		0.31
	$\frac{5}{8}$	
	$\frac{75}{100}$	
		0.25
50%		
80%		
		0.02
	$\frac{3}{8}$	
	$\frac{1}{25}$	

## Percentages:

### 1. Find the multiplier of

a. An increase by 20%

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b. A decrease by 65%

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c. An increase by 8.4%

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d. A decrease by 98.5%

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### 2. Find the resulting new increased or decreased quantity due to:

(i) 10 % decrease in \$ 600

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(ii) 8 % increase in 30 km

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(iii)  $15\frac{1}{2}$  % increase in a speed of 600 km/h

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(iv) 80 % decrease in a temperature of 60° Celsius

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(v) 4.5 % increase in a salary of \$ 1250

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(vi) 6.5 % decrease in 500 gram

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**3. Solve the following problems:**

a. A bakery reported 15% decrease in the sale of his bread this year. If the bakery sold 7000 loaves of bread last year, how many loaves did it sell this year?

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b. Jad bought a car game for \$200.

i) He painted and repaired it and sold it for a profit of 40%.How much did he sell it for?

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ii) His friend crashed the car and then sold it at a 95% loss. How much did it sell for?

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**4. Find the original amount given that:**

a. After an increase of 30% the price is \$450

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-----  
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b. After a decrease of 15 % the price is \$91

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c. After a decrease of 19% the price is \$87.35

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**5. Solve the following problems:**

a. John sells a laptop of \$1247 at a loss of 75%. What did John pay for the laptop originally?



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b. A plant increased its height by  $\frac{6}{7}$  to 49 cm. How high was the plant originally?

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**6. For the following Items, find the selling price:**

**a.** A TV is purchased for \$700 and marked up 70%.

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**b.** A mirror is purchased for \$250 and marked down 13%

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**7. Solve the following problems:**

**a.** Sara scored 75% in her test out of 90. What mark did she score?

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**b.** John scored 72% for an examination marked out of 150. How many marks did he actually score out of 150?

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**c.** A share farmer receives 49 % of the proceeds of the sale of a crop of wheat. If the wheat is sold for \$72300, how much does he receive?

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**d.** There are 28 students in a class. Sixteen of those students are boys. What percentage of the class are girls?

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# Ratios

**Question1. Express in its simplest forms:**

35:40	2:8
12:18	30:40
63: 9	8:12
6:12	16:21

**Question 2. Which of the following pairs are equal ratios:**

a. 5:4, 10:6	b. 1:3, 1:4
c. 3:11, 9: 22	d. 4:10, 2: 5

**Question 3. Find the missing numbers in the following proportions:**

a) $5 : 10 = 20 : \underline{\quad}$	b) $2 : 3 = 4 : \underline{\quad}$
c) $\underline{\quad} : 9 = 9 : 27$	d) $\underline{\quad} : 8 = 25 : 40$
e) $6 : 30 = 24 : \underline{\quad}$	f) $16 : \underline{\quad} = 4 : 3$

**Question 4. Express as ratio in its simplest forms:**

a- 5m to 25m	b- 2m to 40cm
c- 2 seconds to 1 minute	d- 50g to 10 kg
e- 1 hour to 30 minutes	f- 6 days to 2 weeks

**Question 5- Dividing Ratios into quantities**

1- Divide 49 yd in the ratio 1 : 6.

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2- Two numbers are in the ratio 2 : 3, and the sum of the numbers is 225. Find the numbers.

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3- Divide 275 into two parts which are in the ratio 4 : 7.

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4- Sophia and Reina share a reward of \$117 in a ratio of 1 : 8. What fraction of the total reward does Sophia get?

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5- \$80 are to be divided between Abdullah and Dani in the ratio 5 : 11. How much does each get?

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6- Lama and Sara share a reward of \$140 in a ratio of 2 : 5. What fraction of the total reward does Lama get?

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**Question 6. Solve the following problem:**

1. a) A math club has 25 members, of which 11 are males and the rest are females. What is the ratio of males to all club members?

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- b) A group of pre-schoolers has 15 boys and 12 girls. What is the ratio of girls to boys?

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- c) Another group of pre-schoolers has 8 boys and 24 girls.

- i. What is the ratio of boys to all children?

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- ii. What is the ratio of girls to all children?

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2. The ratio of teachers to students in a school is 2:16. If there are 80 teachers, find the number of students.

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3. When Maria exercises, she does push-ups and sit-ups in the ratio 4:3. In one session Maria completed 60 sit ups. How many push-ups did she complete?

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4. The ratio of girls to boys in a swimming club was 2 : 4. There were 14 girls. How many total members were there in the club?

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5. Sophia and Reina share a reward of \$117 in a ratio of 1 : 8. What fraction of the total reward does Sophia get?

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# Algebra

## Question 1:

a) How many terms are in the expression:  $4x^3 + 6x^2 + 4x + 1$

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b) State the coefficient of y in:  $2x^2 + 3xy - 7y$

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## Question 2: Find the like terms in the following:

a)  $2x^2 - 4x + 3 + 3x^2 - 6x$

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b)  $5a - 3b + a - 2b + 1$

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c)  $3c - c^2 + 3c + 2$

-----

d)  $2e + ef - 4e + 2ef + 2f$

-----

## Question 3: Simplify, if possible, by collecting like terms:

a)  $7x + 5x + 5 =$  -----

b)  $2p + 1 + 3p - 3 =$  -----

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

d)  $-7c + 5d^2 + cd + 4c =$  -----

e)  $5a^2b + ab^2 - 2a^2b - ab^2 =$  -----

f)  $3xy - x^2y - xy + 4x^2y =$  -----

**Question 4: Simplify if possible:**

a)  $5p \times 7 =$  -----

b)  $2f \times 4f =$  -----

c)  $9s \times 4s^2 =$  -----

d)  $w^2 \times 6w =$  -----

e)  $m \times 5mb =$  -----

f)  $7c \times 6c^2 \times 2b =$  -----

**Question 5: State the inverse of the following operations:**

a)  $-7$  -----

b)  $\div 8$  -----

c)  $+13$  -----

d)  $\times \frac{1}{2}$  -----



**Question 6: find the value of x using the inverse operations:**

a)  $x + 4 = 17$

b)  $x - 8 = 2$

c)  $3x = -15$

d)  $\frac{x}{-2} = -12$

e)  $2x - 9 = -5$

f)  $\frac{x+4}{9} = -1$

g)  $\frac{x}{3} - 6 = 3$

h)  $2x + 7 = 15$

i)  $\frac{x}{5} + 12 = 10$

j)  $\frac{x-2}{5} = 4$

k)  $\frac{x}{4} - 11 = -2$

l)  $3x + 2x = 65$

m)  $3x - x + 5x - 4 = 0$

n)  $2x - 3x - 24 = 0$

o)  $9x - 3 - 4x = 12$

## Question 7- Solving Equations

### 1. True or False

#		True or False	Correct Answer
1	$s^2$ and $2s$ are like terms.		
2	<i>There are 5 terms in the following expression:</i> $2x-3y+5$		
3	<i><math>m=6</math> in the following equation</i> $2m + 10 = 20$		
4	<i>The coefficient of <math>y</math> is 5 in the following expression: <math>3y+9n-10</math></i>		

**2. Simplify the following expressions:**

a. $2a \times 3a = \text{-----}$	b. $4a \times 3 = \text{-----}$
c. $a \times b = \text{-----}$	d. $q \times 3 = \text{-----}$
e. $2a \times 4d = \text{-----}$	f. $11 \times 2z = \text{-----}$
g. $13w^2 \times w = \text{-----}$	h. $12 \times 5t = \text{-----}$
i. $11t^3 \times 4st = \text{-----}$	j. $13q \times s = \text{-----}$
k. $11u \times 5v = \text{-----}$	l. $3t \times 7s = \text{-----}$
m. $13q \times s = \text{-----}$	n. $2ab \times 4b = \text{-----}$
o. $3ab \times 2a = \text{-----}$	p. $7y \times 2yx = \text{-----}$
q. $8m \times 3n^2 = \text{-----}$	r. $3t^2 \times 4t = \text{-----}$
s. $f + f + 2f = \text{-----}$	t. $k + k - 2 = \text{-----}$
u. $y + y + 2y + x = \text{-----}$	v. $-b - 5b + b = \text{-----}$
w. $f + f + 2f = \text{-----}$	x. $3x + 2x - 5 = \text{-----}$
y. $10k - 5w - 6k + 7w = \text{-----}$	z. $a + 2a + 3b - 4b = \text{-----}$

**3. Study the example below and answer the questions that follow:**

$$8p + 4 - q + w$$

a) Is the above example an Equation? Give a reason for your answer?

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b) How many variables are in the above example?

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c) State the coefficient of  $q$ .

---

d) How many terms are found in the example?

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**4. Solve the following:**

a) $5n + 9 = 14$	b) $4n + 2 = 14$	c) $3n - 6 = 21$
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d) $\frac{p - 10}{4} = 8$	e) $3n - 2 = 16$	f) $\frac{k}{3} + 5 = 10$
g) $\frac{n + 3}{2} = 9$	h) $\frac{x}{2} - 4 = 5$	i) $\frac{x}{2} = 7$
j) $\frac{k - 2}{2} = 5$	k) $\frac{x}{3} - 2 = 5$	l) $\frac{x - 7}{-3} = 2$
m) $\frac{x - 5}{4} = -1$	n) $\frac{x}{5} + 7 = 1$	o) $\frac{x}{10} = 5$

# Number Sequences

## 1. Name the next two terms of each sequence then write the rule

1. 4, 9, 14, \_\_\_\_\_ , \_\_\_\_\_
2. 2, -2, -6, \_\_\_\_\_ , \_\_\_\_\_
3. 17, 15, 13, \_\_\_\_\_ , \_\_\_\_\_
4. -7, -5, -3, -1, \_\_\_\_\_ , \_\_\_\_\_

## 2. Fill in the missing number that completes the sequence.

1.) 3, 5, ---, 9

2.) 1, 5, ---, 13

3.) 4, 7, ---, 13

4.) 5, ---, 15, 20

5.) 1, ---, 9, 27

6.) 3, ---, 12, 24

## Challenge yourself with order of operations rules!

Follow the order of operation to evaluate the given expressions. **Show your Work.**

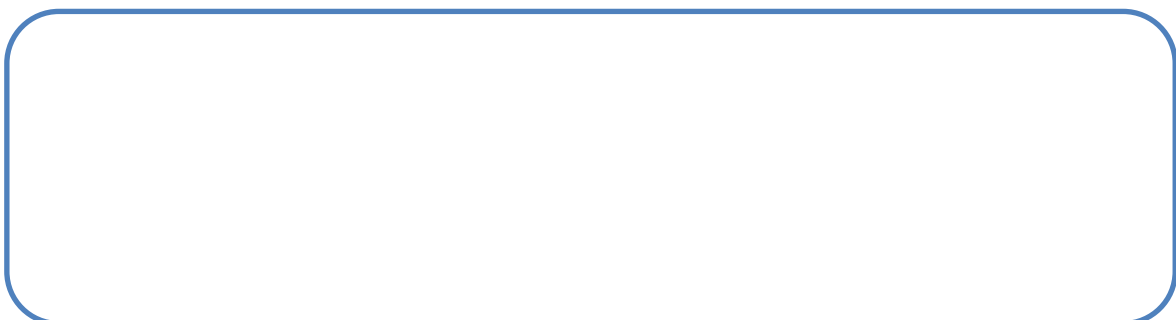
1.  $\sqrt{10^3 - 25 \times 40} + ((10 - 4)^2 \div (-2))$



2.  $\frac{7 - 11 \times 4 + 3^2}{\sqrt{25} + 4 \div 2}$



3.  $\frac{\sqrt{144} \times ((9 - 4)^3 \div (-5))}{8 - 2 \times 3}$



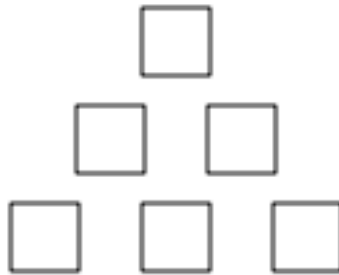
## Math Riddles!

1. What is the value of:

$$\frac{1}{2} \text{ of } \frac{2}{3} \text{ of } \frac{3}{4} \text{ of } \frac{4}{5} \text{ of } \frac{5}{6} \text{ of } \frac{5}{7} \text{ of } \frac{7}{8} \text{ of } \frac{8}{9} \text{ of } \frac{9}{10} \text{ of } 1,000?$$

Hint: work backward!

2. Use the fractions  $\frac{2}{3}$ ,  $\frac{1}{3}$ ,  $\frac{1}{6}$ ,  $\frac{5}{6}$ ,  $\frac{1}{2}$  and the whole number 1 to fill in the spaces below so that each side of the triangle will have the same sum. Use each number exactly once.





3. I look like this: 0. \_ \_ \_ \_ \_

None of my digits are equal.

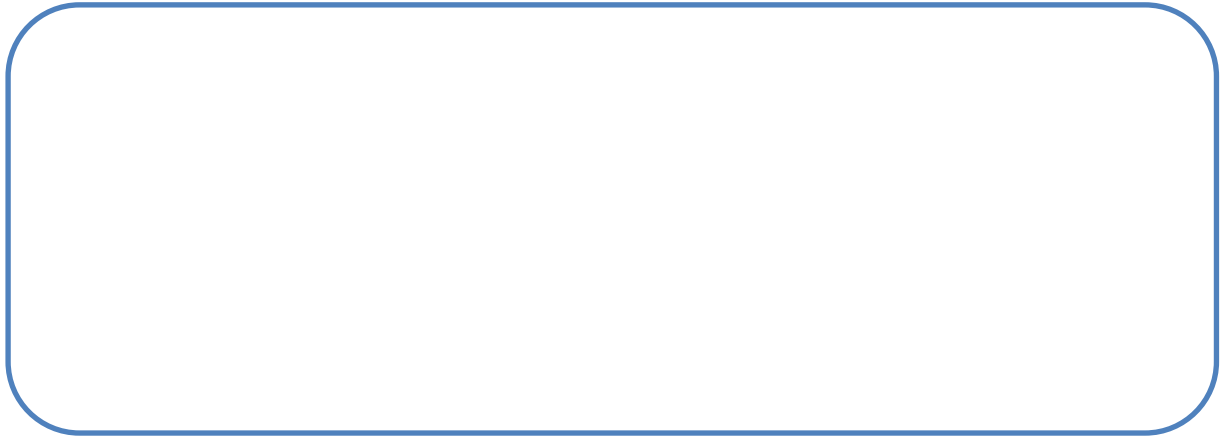
The sum of my digits is greater than 32.

My tenths, thousandths, and hundred thousandths digits are odd.

My thousandths digit is four more than my tenths digit.

My ten thousandths digit is twice my hundredths digit.

What number am I?



4. I look like this: \_ \_ \_ . \_ \_

My tens digit is odd and prime.

My ones digit is even and composite.

My hundreds digit is prime and equal to the sum of my ones and tens digits.

My tenths digit is odd and has three factors.

My hundredths digit is even and a square number.

What number am I?

