

Review of Grade 8 Math in 2020-21

Name: Answer Key

Date: _____

1) Write the opposite of each integer:

a) -9 , $+9$

b) 0 , 0

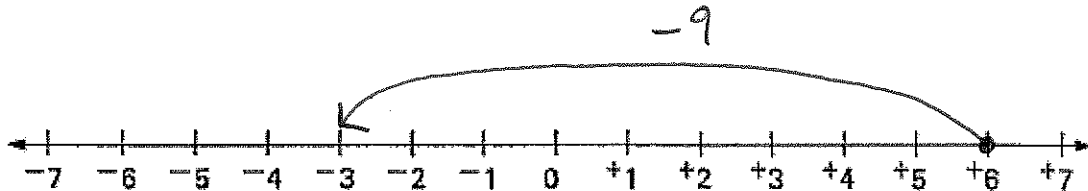
2) Place a $>$ or $<$ sign between the integers to show which is larger or smaller:

a) -17 $>$ -24

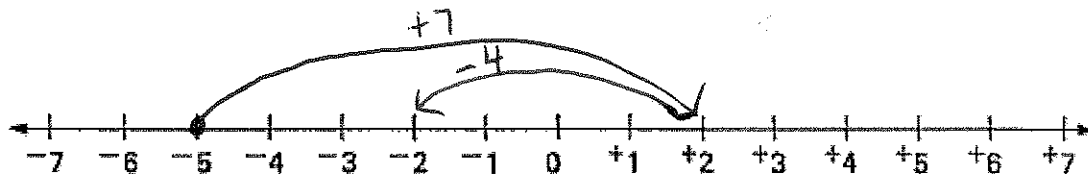
b) $+2$ $<$ 10

3) Show the addition of these integers on a number line using arrows and write each answer on the space provided:

a) $(+6) + (-9) =$ -3



b) $(-5) + (+7) + (-4) =$ -2



4) **ADD THE FOLLOWING** - You do not have to re-write the question.

a) $(+5) + (-9) = \underline{-4}$

b) $(-12) + (-6) = \underline{-18}$

c) $(+14) + (+7) = \underline{+21}$

d) $(-13) + (+8) = \underline{-5}$

e) $(-3) + (-10) + (+4) = \underline{-9}$

f) $(+2) + (-9) + (+15) + (-7) = \underline{+1}$

5) **SUBTRACT THE FOLLOWING** - Rewrite each subtraction as an addition in the space below.

a) $(-10) - (+6) = \underline{-16}$

$(-10) + (-6)$

b) $(-18) - (-11) = \underline{-7}$

$(-18) + (+11)$

c) $(+15) - (-5) = \underline{+20}$

$(+15) + (+5)$

d) $(+20) - (+9) = \underline{+11}$

$(+20) + (-9)$

e) $(+14) - (-6) - (+3) = \underline{+17}$

$(+14) + (+6) + (-3)$

f) $(-3) - (+7) - (-11) - (+5) = \underline{-4}$

$(-3) + (-7) + (+11) + (-5)$

6) **ADD AND SUBTRACT** - Rewrite each question below and then find the answer.

a) $(+4) + (-12) - (-8) = \underline{0}$

$(+4) + (-12) + (+8)$

b) $(-17) - (+8) + (+5) - (-9) = \underline{-11}$

$(-17) + (-8) + (+5) + (+9)$

7) MULTIPLY

a) $(-6) \times (-11) = \underline{+66}$

b) $(+8) \times (-3) = \underline{-24}$

c) $(-4) \times (+5) = \underline{-20}$

d) $(+3) \times (+10) = \underline{+30}$

e) $(+6) \times (-6) = \underline{-36}$

f) $(-4) \times (-6) = \underline{+24}$

g) $(-4) \times (+7) = \underline{-28}$

h) $(+3) \times (+7) = \underline{+21}$

i) $(+5) \times (-3) \times (-2) = \underline{+30}$

j) $(+2) \times (-3) \times (+3) \times (-2) = \underline{+36}$

8) DIVIDE

a) $(-54) \div (-9) = \underline{+6}$

b) $(+15) \div (-3) = \underline{-5}$

c) $(+42) \div (+6) = \underline{+7}$

d) $(-36) \div (+4) = \underline{-9}$

e) $(+24) \div (-3) = \underline{-8}$

f) $(-12) \div (-6) = \underline{+2}$

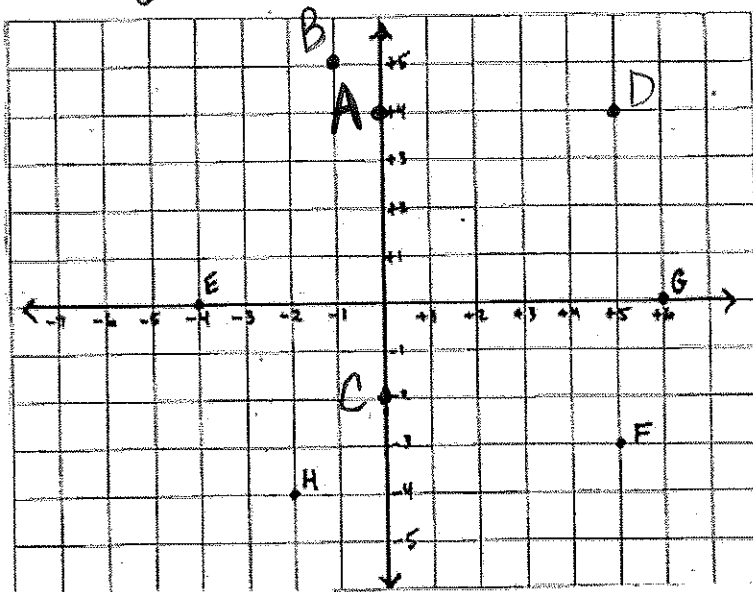
g) $(-64) \div (+8) = \underline{-8}$

h) $(+81) \div (+9) = \underline{+9}$

i) $(+18) \div (-2) \div (+3) = \underline{-3}$

j) $(+100) \div (-2) \div (-2) \div (-5) = \underline{-5}$

9) Write the ordered pairs or coordinates of the 4 points shown on the Coordinate Plane.



Coordinates:

E $-4, 0$

F $+5, -3$

G $+6, 0$

H $-2, -4$

10) Plot these 4 points on the coordinate plane in # 9.

Done on plane.

A) (0, +4)

B) (-1, +5)

C) (0, -2)

D) (+5, +4)

11) The daytime temperatures in Vancouver one week are shown in the table below. Calculate the average daily temperature for this week. SHOW ALL THINKING

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Temperatures	- 12 °C	- 9 °C	+ 4 °C	+ 6 °C	+ 1 °C	- 5 °C	- 10 °C
	NEG	NEG	POS	POS	POS	NEG	NEG

$$\text{NEG } (-12) + (-9) + (-5) + (-10) = -36$$

Calculator allowed

$$\text{POS } (+4) + (+6) + (+1) = +11$$

$$(-36) + (+11)$$

$$-25$$

$$-25 \div 7 =$$

$$-3.57$$

The average temp is -3.57°C

12) There were 124 fox and 300 rabbits in Fiddler Park. The population of fox was expected to increase by 9 each year for the next 4 years. The population of rabbits was expected to decrease by 8 each year for the next 4 years.

How many rabbits and fox would there be in Fiddler Park in total after 4 years ?

$$\text{Fox } 124 + 4 \times 9$$

$$124 + 36$$

$$160$$

$$160 + 268 = 428$$

Calculator allowed

$$\text{Rabbits } 300 - 4 \times 8$$

$$300 - 32$$

$$268$$

There would be 428 fox and rabbits after 4 years

13) Reduce to lowest terms:

a) $\frac{16}{20} = \frac{4}{5}$

b) $\frac{20}{25} = \frac{4}{5}$

14) Write the following as a mixed number in lowest terms:

a) $\frac{19}{5} = 3\frac{4}{5}$

b) $\frac{20}{3} = 6\frac{2}{3}$

c) $\frac{14}{6} = 2\frac{1}{3}$

d) $\frac{18}{8} = 2\frac{1}{4}$

15) Write as an improper fraction:

a) $9\frac{3}{4} = \frac{39}{4}$

b) $4\frac{3}{10} = \frac{43}{10}$

16) Add the following. Answers should be proper fractions or mixed numbers in lowest terms.

a) $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$

b) $2\frac{5}{8} + 3\frac{5}{8} = 5\frac{10}{8} = 6\frac{2}{8} = 6\frac{1}{4}$

c) $1\frac{3}{4} + 1\frac{3}{4} = 2\frac{6}{4} = 3\frac{2}{4} = 3\frac{1}{2}$

d) $4\frac{3}{10} + 5\frac{9}{10} = 9\frac{12}{10} = 10\frac{2}{10} = 10\frac{1}{5}$

e) $\frac{2}{3} + \frac{3}{4} = \frac{8}{12} + \frac{9}{12} = \frac{17}{12}$

f) $\frac{2}{5} + \frac{1}{4} = \frac{8}{20} + \frac{5}{20} = \frac{13}{20}$

g) $3\frac{5}{6} + 5\frac{3}{8} = 8\frac{20}{24} + 5\frac{9}{24} = 13\frac{29}{24}$

h) $5\frac{7}{10} + 8\frac{3}{5} = 13\frac{7}{10} + 8\frac{6}{10} = 21\frac{13}{10}$

$3\frac{20}{24} + 5\frac{9}{24} = 8\frac{29}{24}$

$5\frac{7}{10} + 8\frac{6}{10} = 13\frac{13}{10}$

17) Subtract the following. Answers should be proper fractions or mixed numbers in lowest terms.

a) $\frac{8}{9} - \frac{1}{9} = \frac{7}{9}$ b) $\frac{11}{16} - \frac{3}{16} = \frac{8}{16} = \frac{1}{2}$

c) $9\frac{7}{12} - 5\frac{4}{12} = 4\frac{3}{12} = 4\frac{1}{4}$ d) $\frac{3}{4} - \frac{1}{6} = \frac{9}{12} - \frac{2}{12} = \frac{7}{12}$

e) $8\frac{5}{6} - 3\frac{1}{3} = 5\frac{1}{2}$ f) $5\frac{2}{3} - 1\frac{1}{5} = 4\frac{7}{15}$
 $8\frac{5}{6} - 3\frac{2}{6} = 5\frac{3}{6}$ $5\frac{10}{15} - 1\frac{3}{15}$

k) $8\frac{1}{2} - 2\frac{2}{3} = 5\frac{5}{6}$ j) $5\frac{1}{3} - 2\frac{3}{4} = 2\frac{7}{12}$
 Borrow Type Borrow type
 $7\frac{8}{6} - 2\frac{4}{6}$ $4\frac{5}{12} - 2\frac{9}{12}$

18) Multiply these fractions. (Remember: Cancel "bikini numbers" whenever possible)

a) $\frac{1}{4} \times \frac{3}{5} = \frac{3}{20}$ b) $\frac{1}{2} \times \frac{2}{3} = \frac{1}{3}$

c) $\frac{9}{16} \times \frac{5}{1} = \frac{45}{16} = 2\frac{13}{16}$ d) $\frac{2}{5} \times \frac{7}{15} = \frac{14}{75}$

e) $\frac{5}{20} \times \frac{1}{4} = \frac{1}{16}$ f) $\frac{3}{15} \times \frac{2}{10} = \frac{1}{25}$

g) $\frac{2}{5} \times \frac{3}{4} \times \frac{8}{12} = \frac{1}{5}$

$\frac{2}{5} \times \frac{3}{4} \times \frac{8}{12} = \frac{2 \cdot 3 \cdot 8}{5 \cdot 4 \cdot 12} = \frac{48}{240} = \frac{1}{5}$

h) $\frac{9}{14} \times \frac{10}{21} \times \frac{7}{15} = \frac{1}{7}$

$\frac{9}{14} \times \frac{10}{21} \times \frac{7}{15} = \frac{9 \cdot 10 \cdot 7}{14 \cdot 21 \cdot 15} = \frac{630}{4410} = \frac{1}{7}$

19) Divide these fractions (Remember to re-write - keep first, flip second, multiply)

a) $\frac{3}{12} \div \frac{3}{4}$

$\frac{3}{12} \times \frac{4}{3} = \frac{1}{3}$

b) $6 \div \frac{3}{4}$

$6 \times \frac{4}{3} = 8$

c) $\frac{2}{3} \div 8$

$\frac{2}{3} \times \frac{1}{8} = \frac{1}{12}$

d) $\frac{6}{14} \div \frac{16}{12}$

$\frac{6}{14} \times \frac{12}{16} = \frac{9}{28}$

e) $4 \frac{1}{2} \div 1 \frac{1}{4}$

$\frac{9}{2} \times \frac{4}{5} = \frac{18}{5} = 3 \frac{3}{5}$

f) $1 \frac{2}{3} \div 2 \frac{5}{6}$

$\frac{5}{3} \times \frac{6}{17} = \frac{10}{17}$

20) Mr. Crupi has 3 jars of peanut butter and he combines them all into one container.

Jar #1 has $2 \frac{3}{4}$ cups, jar #2 has $1 \frac{7}{8}$ cups and jar #3 has $4 \frac{1}{2}$ cups.

Mr. Birch then stole $\frac{4}{5}$ of his peanut butter.

OK means multiply → means add

How many cups of peanut butter did Mr. Birch steal? Show all thinking.

$2 \frac{3}{4} + 1 \frac{7}{8} + 4 \frac{1}{2}$

$2 \frac{6}{8} + 1 \frac{7}{8} + 4 \frac{4}{8}$

$7 \frac{17}{8} = 9 \frac{1}{8}$

TOTAL
Cups

$\frac{4}{5} \times 9 \frac{1}{8}$

$\frac{4}{5} \times \frac{73}{8} = \frac{73}{10} = 7 \frac{3}{10}$

Mr Birch stole $7 \frac{3}{10}$ cups of PB.

Calculator
allowed

- 21) Mrs. Thomsen has $3\frac{1}{2}$ liters of chocolate milk in her jug.
Her son has $1\frac{1}{3}$ of this amount in his jug.
They pour their milk into one large bowl.

means multiply
How many liters of milk are in this bowl? Show all thinking.

Son $1\frac{1}{3} \times 3\frac{1}{2}$

$$\frac{4}{3} \times \frac{7}{2}$$

$$\frac{14}{3} = 4\frac{2}{3} \text{ L}$$

In the bowl

$$3\frac{1}{2} + 4\frac{2}{3}$$

$$3\frac{3}{6} + 4\frac{4}{6}$$

$$7\frac{7}{6} = 8\frac{1}{6}$$

Calculator
allowed

There are $8\frac{1}{6}$ L of milk
in this bowl.

- 22) Mr. Makowsky has $10\frac{4}{5}$ pounds of ground beef.
He divides this meat up equally into 6 Ziploc bags.
He cooks half of one bag for himself.

means multiply
How many pounds of meat did he cook for himself? Show all thinking.

$$10\frac{4}{5} \div 6$$

$$\frac{9\cancel{5}4}{5} \times \frac{1}{6}$$

$$\frac{9}{5} = 1\frac{4}{5} \text{ pounds}$$

in each bag

Cooks $\frac{1}{2} \times 1\frac{4}{5}$

$$\frac{1}{2} \times \frac{9}{5} = \frac{9}{10}$$

He cooked $\frac{9}{10}$ pounds
of meat for himself

Calculator
allowed

23) Solve the following equations. Show all steps.

a) $6x + 20 = 74$
~~-20~~ ~~-20~~
 $\frac{6x}{6} = \frac{54}{6}$
 $x = 9$

b) $-3(x + 5) = 15$
 Distributive property
 $-3x + 15 = 15$
~~+15~~ ~~+15~~
 $-3x = 30$
~~-3~~ ~~-3~~
 $x = -10$

c) $-3 + \frac{x}{-6} = 11$
~~+3~~ ~~+3~~
 $\frac{x}{-6} = 14$
~~-6~~ ~~-6~~
 $x = -84$

d) $8 - \frac{x}{4} = 11$
~~-8~~ ~~-8~~
 $-\frac{x}{4} = 3$
~~4~~ ~~4~~
 $-x = 12$
 $x = -12$

Calculator allowed

24) Tim buys T-Shirts for his sporting goods store. He needs to pay \$ 18 per shirt plus a delivery fee of \$ 55. His total bill came to \$ 3025 before taxes. How many shirts did Tim order? Write an equation and solve.

Calculator allowed

$18s + 55 = 3025$
~~-55~~ ~~-55~~
 $18s = 2970$
 $\frac{18s}{18} = \frac{2970}{18}$
 $s = 165$

Tim ordered 165 shirts

25) An ordered pair $(-5, Y)$ is found on a line with the equation $Y = -4x + 8$. Determine the missing value of Y in the ordered pair.

Calculator allowed

Substitute x with -5
 $Y = -4 \cdot -5 + 8$
 $Y = +20 + 8$
 $Y = 28$

26) Solve the equation $-6x - 3 = 20$. State the answer in fraction form.

$$\begin{array}{r}
 -6x = 23 \\
 +3 \quad +3 \\
 \hline
 -6x = 23 \\
 -6 \quad -6 \\
 \hline
 x = -3\frac{5}{6}
 \end{array}$$

Calculator allowed

ADD
SUBTRACT
MULTIPLY

27) You are given the 2 integers, + 8 and - 5. Find their sum, difference, product and quotient.

Divide

Sum $(+8) + (-5) = (+3)$
 Difference $(+8) - (-5) = (+13)$
 Product $(+8) \times (-5) = (-40)$
 Quotient $(+8) \div (-5) = (-1.6)$ OR $(-\frac{3}{5})$

28) **The Table Pattern:** Observe the 3 table arrangements below. The rectangle is a table and the dot (•) is a chair.

Table 1

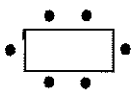


Table 2

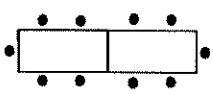


Table 3

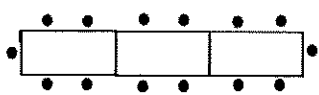


Table 4



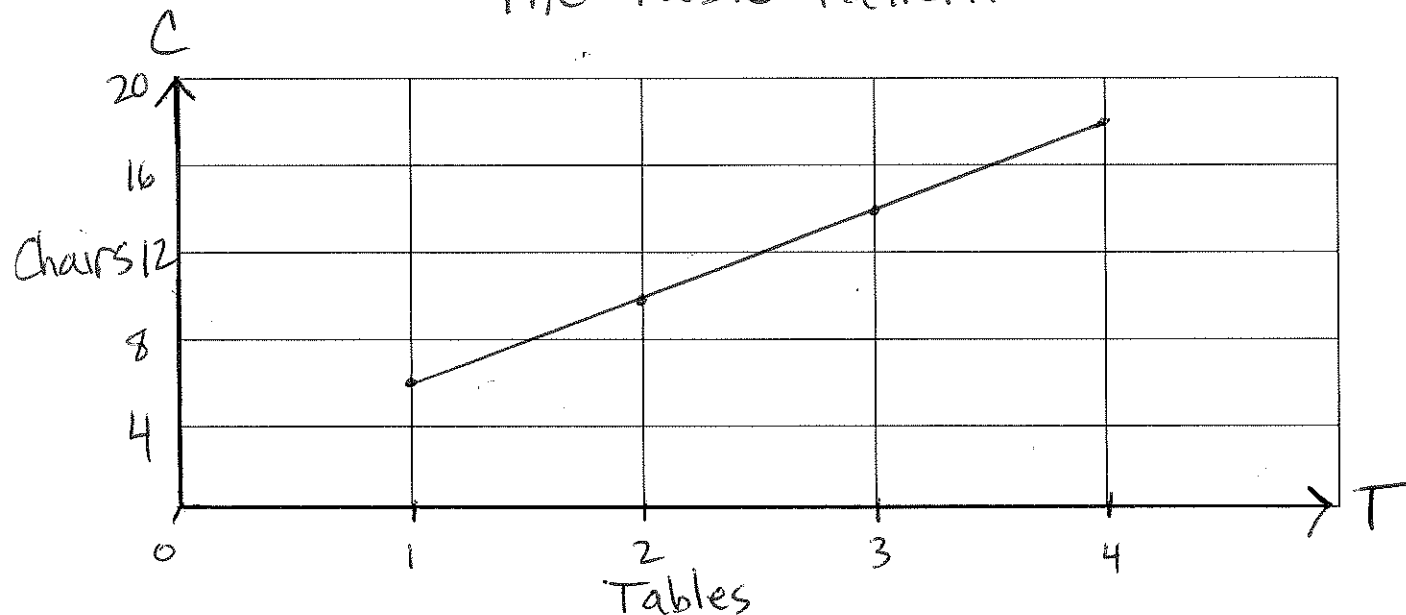
- a) Draw the next table in the pattern above.
- b) Complete the table of values. The first ordered pair has been done for you.

Number of Tables (T)	1	2	3	4
Number of Chairs (C)	6	10	14	18

$\underbrace{\quad\quad\quad}_4$
 $\underbrace{\quad\quad\quad}_4$
 $\underbrace{\quad\quad\quad}_4$

c) Complete a graph. Remember to label the X and Y axis and create a title.

The Table Pattern



c) Is it reasonable to have points between the ones on the graph? Explain.

It is not reasonable because you can't have a fraction of a table or a fraction of a chair

d) Write an equation that shows the relation between T and C.

$$C = 4T + 2$$

e) Calculate how many chairs would be required for the 28th table pattern. Show your work

Substitute T with 28

$$C = 4T + 2$$

$$C = 4 \cdot 28 + 2$$

$$C = 112 + 2$$

$$C = 114$$

Calculator
allowed

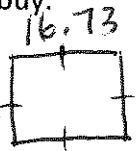
29) List the first 15 perfect squares.

1, 4, 9, 16, 25, 36, 49, 64, 81, 100,
121, 144, 169, 196, 225

30) Estimate the square root of 158. Use the 3 point approach to show your thinking.

- It is between the $\sqrt{144}$ and $\sqrt{169}$ but closer to $\sqrt{169}$
- It is between 12 and 13 but closer to 13
- Estimate 12.60

31) Amanda has a square garden that has an area of 280 m². She wants to build a fence all around it to keep the rabbits and deer out. Calculate how many meters of fencing Amanda will need to buy.



$$\bullet \sqrt{280} = 16.73 \text{ m}$$

$$\bullet 16.73 \times 4 = 66.92 \text{ m}$$

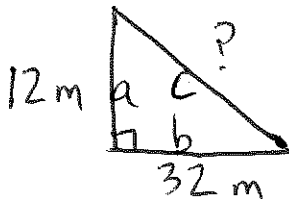
$$\sqrt{A} = L \text{ (one side)}$$

Calculator
allowed

Amanda will need to buy 66.92 m

32) A right triangle has leg lengths of 12 and 32 meters. Calculate the length of its hypotenuse.

Include a diagram of the triangle.



$$c^2 = a^2 + b^2$$

$$c^2 = 12^2 + 32^2$$

$$c^2 = 144 + 1024$$

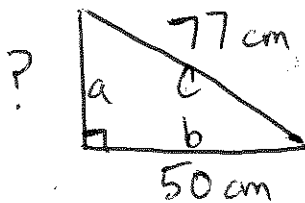
$$c^2 = 1168$$

$$c = \sqrt{1168} = 34.18$$

The length of the
hypotenuse is
34.18 m

Calculator
allowed

33) A right triangle has one leg that is 50 centimeters long. Its hypotenuse is 77 centimeters long. Calculate the length of the other leg. Round to the hundredth. Include a diagram of the triangle.



$$c^2 = a^2 + b^2$$

$$77^2 = a^2 + 50^2$$

$$5929 = a^2 + 2500$$

$$\begin{array}{r} -2500 \\ 5929 = a^2 + 2500 \\ \hline -2500 \end{array}$$

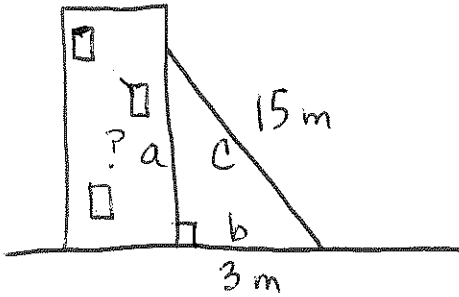
$$3429 = a^2$$

$$a = \sqrt{3429} = 58.56 \text{ cm}$$

Calculator
allowed

The length of the leg is 58.56 cm

34) A 15 m ladder is leaning against a building. The bottom of the ladder is 3 m from the building. Calculate how high up the building the ladder is. Include a diagram with your calculations. Round to the hundredth.



Calculator allowed

$$c^2 = a^2 + b^2$$

$$15^2 = a^2 + 3^2$$

$$225 = a^2 + 9$$

$$\begin{array}{r} -9 \\ \hline 216 = a^2 \end{array}$$

$$a = \sqrt{216} = 14.70 \text{ m}$$

The ladder is 14.70 m off the ground

35) There are 18 cars, 9 motorcycles, 15 vans and 6 bicycles in the Safeway parking lot.

- a) Calculate the ratio of vans to motorcycles 15:9 ÷ 3 (5:3)
- b) Calculate the ratio of cars and bicycles to vans 24:15 ÷ 3 (8:5)
- c) Calculate the ratio of cars to the total vehicles. Express the ratio as a fraction, decimal and percent as well. $18 + 9 + 15 + 6 = 48 \text{ vehicles}$

Calculator allowed

$$C : T$$

$$18 : 48 \quad \div 6 = 3 : 8, \frac{3}{8}, 0.38, 38\%$$

36) Michael has 2 recipes for chocolate milk. One calls for 3 tablespoons of chocolate syrup for every 4 cups of milk. The other recipe calls for 7 tablespoons of syrup for 9 cups of milk. What is the ratio of syrup to milk in the "more chocolatey" recipe?

Find the unit rate (TBSP / cup of milk) for each recipe

Recipe 1 : $3 \div 4 = 0.75 \text{ TBSP / cup}$

Recipe 2 : $7 \div 9 = 0.78 \text{ TBSP / cup}$

Calculator allowed

Recipe 2 is the more "chocolatey" recipe because it contains more syrup per cup of milk

37) Use proportional reasoning to answer the 2 questions below.

Angela drove her car a distance of 95 km in 1.75 hours

- a) At this rate, how many hours would it take her to travel 360 km? Round your answer to the hundredth (2 decimal places)

$$\begin{array}{ccc} \text{Km} & 95 & \xrightarrow{=} & 360 & \text{Km} \\ \text{h} & 1.75 & \xrightarrow{=} & x & \text{h} \end{array} \quad \begin{array}{l} 95x = 630 \\ \frac{95x}{95} = \frac{630}{95} \\ x = 6.63 \end{array}$$

Calculator
allowed

It would take her 6.63 hours to travel 360 Km.

- b) At this rate, how many kilometers would she travel in 15 hours? Round your answer to the hundredth (2 decimal places)

$$\begin{array}{ccc} \text{Km} & 95 & \xrightarrow{=} & x & \text{Km} \\ \text{h} & 1.75 & \xrightarrow{=} & 15 & \text{h} \end{array} \quad \begin{array}{l} 1.75x = 1425 \\ \frac{1.75x}{1.75} = \frac{1425}{1.75} \\ x = 814.29 \end{array}$$

Calculator
allowed

She would travel 814.29 Km in 15 hours.

38) Mark needs to buy jam-filled donuts for his school and wants to know which bakery offers the best price. Bakery #1 offers 36 donuts for \$ 20.50. Bakery # 2 charges \$ 10.98 for 18 donuts. Bakery #3 sells 15 donuts for \$ 7.35. Calculate the unit price for each bakery and determine which one offers the best deal.

divide \$ by donuts

$$\text{Bakery 1 : } 20.50 \div 36 = \$ 0.57 / \text{donut}$$

$$\text{Bakery 2 : } 10.98 \div 18 = \$ 0.61 / \text{donut}$$

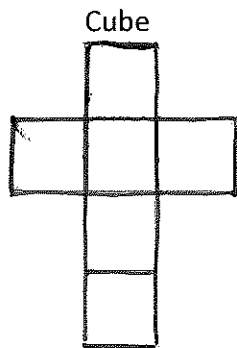
$$\text{Bakery 3 : } 7.35 \div 15 = \$ 0.49 / \text{donut}$$

Calculator
allowed

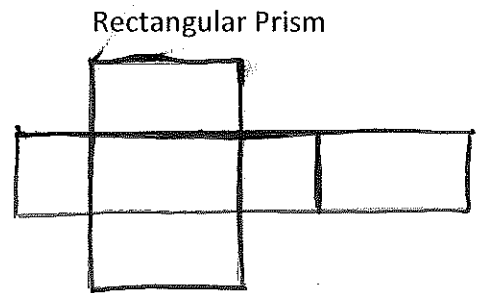
Bakery 3 offers the best deal because it costs less per donut (\$ 0.49).

39) Draw a net for each 3-D shape below:

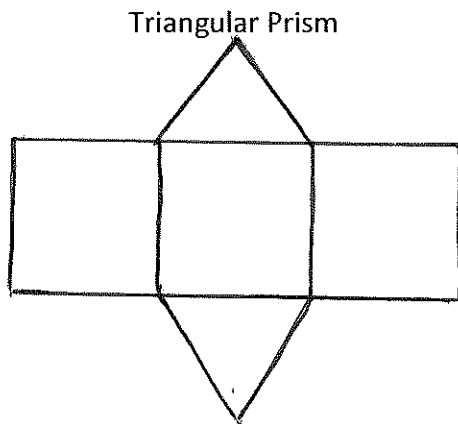
a)



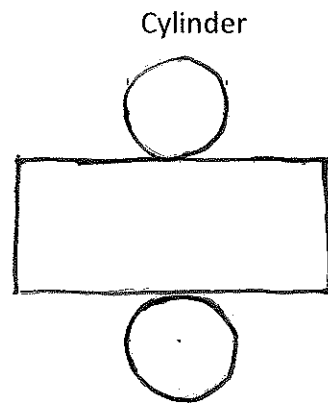
b)



c)



d)

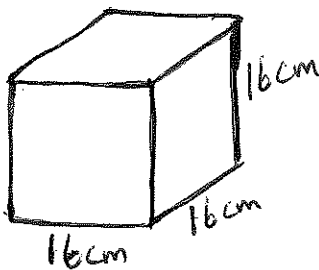


40) Calculate the surface area and volume of a cube whose side length 16 cm long. Include a diagram.

$$L \times L \times 6 \text{ OR } L^2 \times 6$$

Calculator allowed

Diagram



Surface Area

$$L^2 \times 6$$

$$16^2 \times 6$$

$$16 \times 16 \times 6$$

$$1536 \text{ cm}^2$$

Volume

$$L^3$$

$$16^3$$

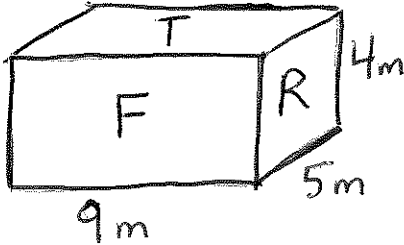
$$16 \times 16 \times 16$$

$$4096 \text{ cm}^3$$

41) Calculate the surface area and volume of a rectangular prism that is 5 meters wide, 9 meters long and 4 meters high. Include a diagram.

Calculator allowed

Diagram



Surface Area

$$\begin{aligned} F & 9 \times 4 = 36 \text{ m}^2 \\ B & 9 \times 4 = 36 \text{ m}^2 \\ L & 5 \times 4 = 20 \text{ m}^2 \\ R & 5 \times 4 = 20 \text{ m}^2 \\ T & 9 \times 5 = 45 \text{ m}^2 \\ BO & 9 \times 5 = 45 \text{ m}^2 \end{aligned}$$

$$\text{Total: } \boxed{202 \text{ m}^2}$$

Volume

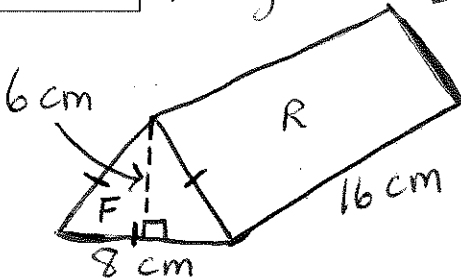
$$\begin{aligned} L \times W \times h \\ 9 \times 5 \times 4 \\ = \boxed{180 \text{ m}^3} \end{aligned}$$

42) Calculate the surface area and volume of a triangular prism that is 8 cm wide, 16 cm long and 6 cm high. Include a diagram.

Calculator allowed

Diagram

Assume all sides of triangle are equal



Surface Area

$$\begin{aligned} F & 8 \times 6 \div 2 = 24 \text{ cm}^2 \\ B & 8 \times 6 \div 2 = 24 \text{ cm}^2 \\ L & 8 \times 16 = 128 \text{ cm}^2 \\ R & 8 \times 16 = 128 \text{ cm}^2 \\ BO & 8 \times 16 = 128 \text{ cm}^2 \end{aligned}$$

$$\text{Total: } \boxed{432 \text{ cm}^2}$$

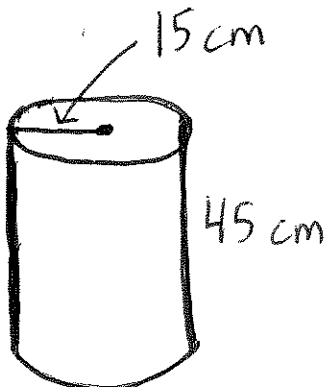
Volume

$$\begin{aligned} b \times h \div 2 \times H \\ 8 \times 6 \div 2 \times 16 \\ = \boxed{384 \text{ cm}^3} \end{aligned}$$

43) Calculate the surface area and volume of a cylinder whose circle has a radius of 15 cm and has a height of 45 cm.

Calculator allowed

Diagram



Surface Area

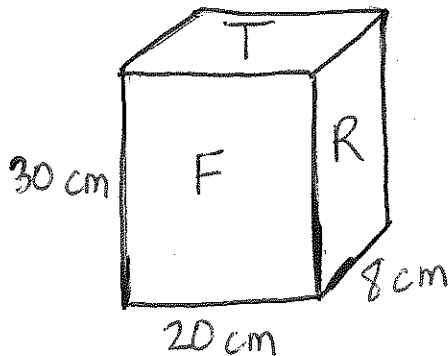
$$\begin{aligned} 2 \cdot \pi \cdot r^2 + \pi \cdot d \cdot h \\ 2 \cdot 3.14 \cdot 15^2 + 3.14 \cdot 30 \cdot 45 \\ 1413 + 4239 \\ \boxed{5652 \text{ cm}^2} \end{aligned}$$

Volume

$$\begin{aligned} \pi \cdot r^2 \cdot h \\ 3.14 \times 15^2 \times 45 \\ \boxed{31792.5 \text{ cm}^3} \end{aligned}$$

44) Jordan needs to make a model of a building for a school project so he uses a 30 X 20 X 8 centimeter cereal box. He paints all the surfaces of the box except the bottom. Calculate the amount of surface area that Jordan painted.

Calculator allowed



$$\begin{aligned} F & 30 \times 20 = 600 \\ B & 30 \times 20 = 600 \\ L & 30 \times 8 = 240 \\ R & 30 \times 8 = 240 \\ T & 20 \times 8 = 160 \end{aligned}$$

Total: 1840 cm^2

45) Calculate the following answer to the nearest hundredth (2 decimal places) and show your steps.

Calculator allowed

a) 17 % of \$ 995 $0.17 \times 995 = \$169.15$

b) 158 % of \$ 44.50 $1.58 \times 44.50 = \$70.31$

c) $\frac{3}{8}$ of \$ 2550.99 $\frac{3}{8} \times \frac{2550.99}{1} = \frac{7652.97}{8} = \956.62

d) $\frac{11}{12}$ of \$ 2550.99 $\frac{11}{12} \times \frac{2550.99}{1} = \frac{28060.89}{12} = \2338.41

46) Greg purchased new basketball shoes that cost \$ 159.99. Calculate the total cost of his shoes with taxes included (5 % GST and 7 % PST). Show all work.

Calculator allowed

$$\begin{matrix} 12\% \\ \text{Tax} \end{matrix} + \begin{matrix} 100\% \\ \text{Cost} \end{matrix} = 112\% \text{ or } 1.12$$

$$1.12 \times 159.99$$

$$= \$179.19$$

47) Sabrina bought a new chainsaw. The regular price was \$ 578 but it was on sale 35 % off. Calculate the total cost of the chainsaw with taxes included (5 % GST and 7 % PST). Show all work.

- $0.35 \times 578 = \$ 202.30$ OFF
- $578 - 202.30 = \$ 375.70$ SALE PRICE
- $1.12 \times 375.70 = \$ 420.78$

Calculator
allowed

The total cost of the chainsaw was \$ 420.78

48) Bill bought a new barbecue that was regularly priced at \$ 950.49. However, it was on sale $\frac{3}{8}$ off. Calculate the total cost of his bbq with taxes included (5 % GST and 7 % PST). Show all work.

- $\frac{3}{8} \times \frac{950.49}{1} = \frac{2851.47}{8} = \$ 356.43$ OFF

Calculator
allowed

- $950.49 - 356.43 = 594.06$ SALE PRICE

- $1.12 \times 594.06 = \$ 665.35$

The total cost of the BBQ was \$ 665.35

49) Write the following numbers as a percent. Show your work.

a) 8 $8 \times 100 = 800\%$

Calculator
allowed

b) 4.5 $4.5 \times 100 = 450\%$

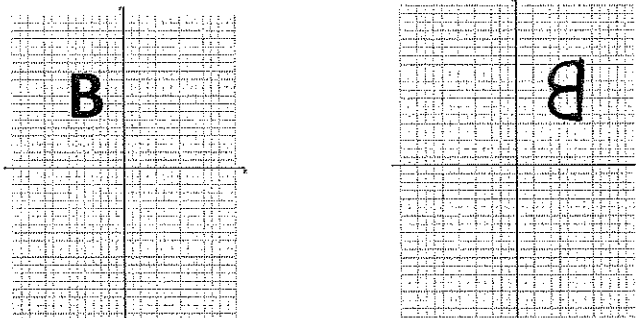
c) $\frac{9}{15}$ $9 \div 15 \times 100 = 60\%$

d) $\frac{42}{19}$ $42 \div 19 \times 100 = 221.05\%$

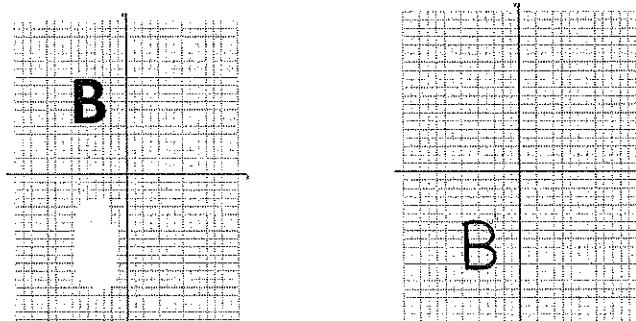
50) If you rotated the arrow below 270° counter-clockwise, which way would it point? Draw it below.



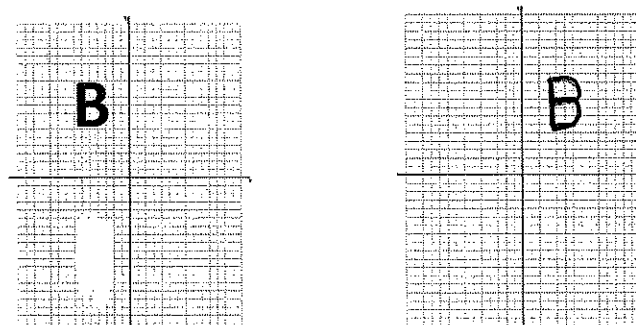
51) You reflect the letter B across the Y axis, draw it's new location below.



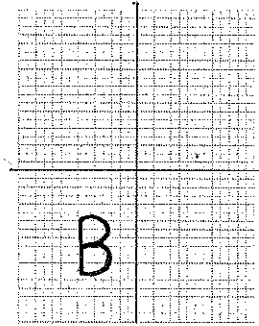
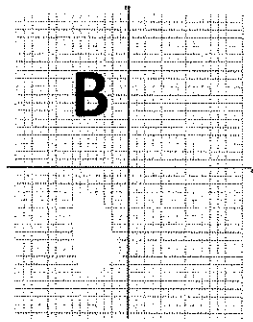
52) You reflect the letter B across the X axis, draw it's new location below.



53) You translate the letter B across the Y axis, draw it's new location below.



54) You translate the letter B across the X axis, draw it's new location below.



55) You rotate the letter B below 180° clock-wise. Draw what it would look like.



56) Calculate the probability of:

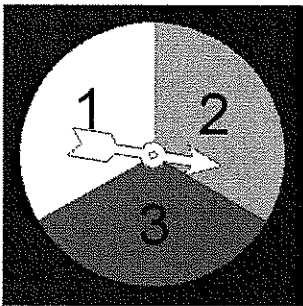
a) Rolling a 5 on a regular die

$$\frac{1}{6} \text{ or } 16.67\%$$

b) Selecting any king from a standard deck of cards

$$\frac{4}{52} = \frac{1}{13} \text{ or } 7.69\%$$

c) Rolling an even number on a die and spinning a 2 on the spinner below.



$$\text{EVEN} = \frac{3}{6} \text{ or } \frac{1}{2}$$

$$2 \text{ spinner} = \frac{1}{3}$$

$$\frac{1}{2} \times \frac{1}{3} =$$

$$\frac{1}{6} \text{ or } 16.67\%$$

d) Tossing tails on a coin and rolling a number greater than 5 on a regular die

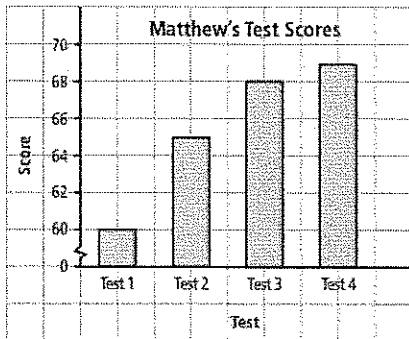
$$\text{Tails} = \frac{1}{2}$$

$$\text{greater than } 5 = \frac{1}{6}$$

$$\frac{1}{2} \times \frac{1}{6}$$

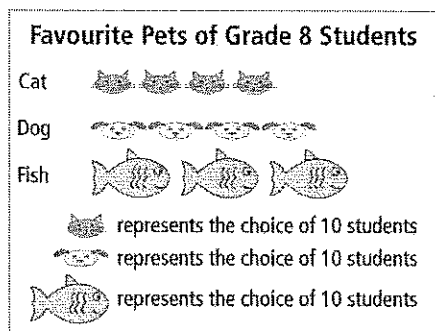
$$= \frac{1}{12} \text{ or } 8.33\%$$

57) The graph below shows Matthew's test scores. Describe what makes this graph inaccurate or misleading. How could you re-draw this graph to represent Matthew's progress more accurately?



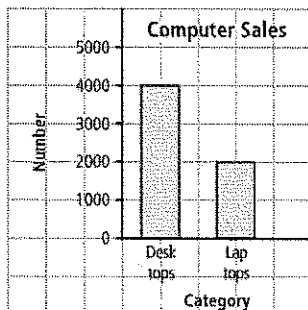
The graph suggests that Matthew's test scores have improved significantly. The break in the scale on the vertical Y axis creates this misleading impression. The graph should be re-drawn with a continuous scale that starts at zero and increases by 10, for example. The graph would be more accurate.

58) The graph below shows pets that grade 8 students prefer. Describe what makes this graph inaccurate or misleading. How could you re-draw this graph to represent the information more accurately?

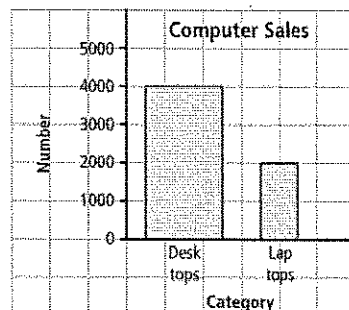


The fish appear to be the favorite pets because the line for fish is the longest one and the symbol for fish is much larger. The line for dogs is longer than the cats which makes it seem like students prefer dogs over cats. The graph should be re-drawn so that each symbol is the same size and are the same distance apart.

59) The graphs below are intending to display the same information: the number of desktop and laptop computers sold at a local electronics store. Describe which graph is inaccurate or misleading and why it may be misleading.



Graph A



Graph B

These graphs show the same information: 4000 desktop sales and 2000 laptop sales. The second graph (B) is misleading because the bar for desktops is twice as wide as the bar for laptops. This greater size suggests that the sales are much higher. The bars should be the same width.

