

ANSWER KEY  
Grade 8 Mathematics  
Western School District  
2010



**Section A: Non-Calculator**

1.	A
2.	D
3.	D
4.	A
5.	C

6.	A
7.	B
8.	B
9.	C
10.	A

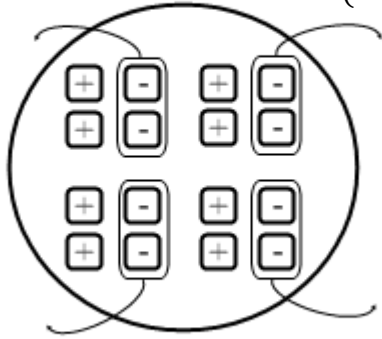
## Section A: Constructed Response [10 Marks]

Write your answers in the space provided, and show all workings to achieve full marks.

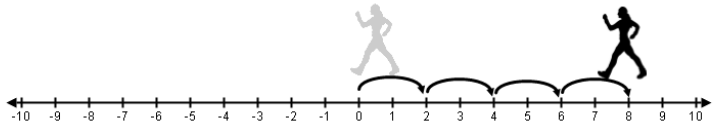
1. Sketch a model (ie, Number line, Bank Model, etc) to calculate:

$$(-4) \times (-2)$$

[3 Marks]



or



**Bank Model:**

Since the first integer is negative, 4 groups of -2 must be removed, therefore 8 zero pairs must be added to the bank. After the groups have been removed, there will be 8 positive tiles left in the bank, hence  $(-4) \times (-2) = 8$ .

**Number Line Model:**

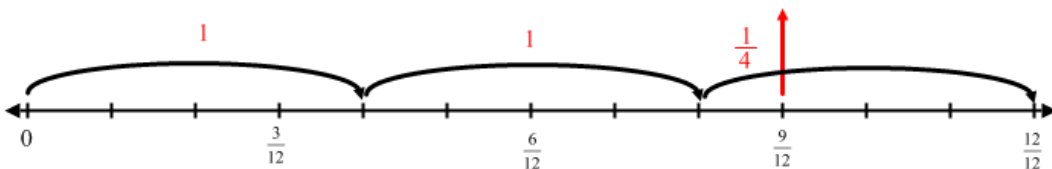
Since the number of steps is negative, face the negative end of the line. The step size is negative, therefore walk backwards. Negative 4 steps of negative 2 leaves you at positive 8, hence  $(-4) \times (-2) = 8$ .

2. Sketch a model (i.e., Area Model, Number Line, etc.) to calculate:

$$\frac{3}{4} \div \frac{1}{3}$$

[3 Marks]

Write each fraction with a common denominator:  $\frac{9}{12} \div \frac{4}{12}$  How many 4 twelfths are there in 9 twelfths? From the number line it can be seen that there are 2 full groups and  $\frac{1}{4}$  of another, therefore:  $\frac{3}{4} \div \frac{1}{3} = 2\frac{1}{4}$  or  $\frac{9}{4}$ .



3. What is the volume of the triangular prism shown?

[1 Mark]

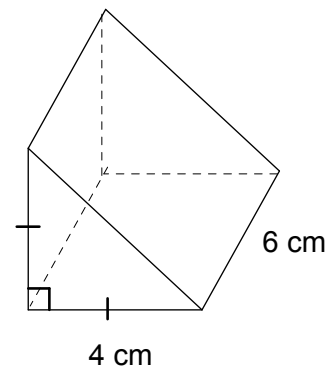
**Methods Will Vary**

Volume = Area of Base  $\times$  Height

Area of Base =  $\frac{\text{Base} \times \text{Height}}{2} = \frac{4 \times 4}{2} = 8 \text{ cm}^2$

Volume =  $8 \text{ cm}^2 \times 6 \text{ cm}$

Volume =  $48 \text{ cm}^3$



4. John plans to make a salad that is big enough to feed four people. The recipe calls for:

5 cups of lettuce

2 cups of cheese

1 cup of ham

3 cups of tomato

3 cups of diced peppers

- A. What is the ratio of ham to total ingredients?

[1 Mark]

<p>Ham : Total ingredients</p> <p>1 : 14</p>
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- B. If John wanted to make the same salad big enough to feed 36 people, how many cups of lettuce and tomatoes will he need? [2 Marks]

**Methods Will Vary**

<p>Since the recipe for four people calls for 5 cups of lettuce and 3 cups tomatoes, the recipe for thirty six people would need nine times more, 45 cups of lettuce and 27 cups of tomatoes.</p>
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**Section B: Calculator**

11.	C
12.	B
13.	D
14.	D
15.	C
16.	B
17.	A
18.	D
19.	B
20.	D

21.	A
22.	C
23.	D
24.	C
25.	B
26.	B
27.	D
28.	B
29.	D
30.	C

31.	A
32.	C
33.	A
34.	A
35.	A
36.	A
37.	B
38.	A
39.	A
40.	D

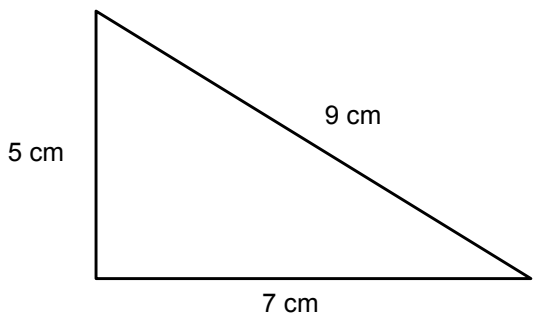
## Section B: Constructed Response [30 Marks]

Write your answers in the spaces provided, and show all workings to achieve full marks.

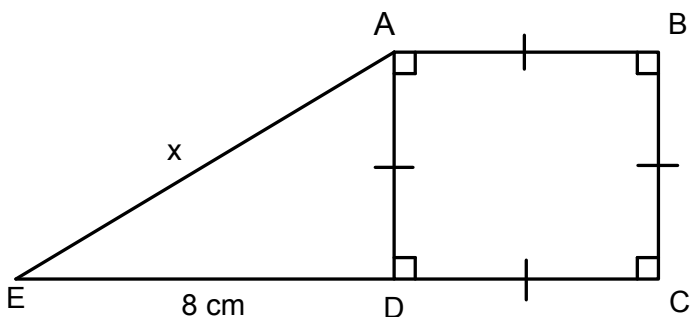
5. Andrew says the triangle shown is a right triangle. Lois says that it is not. Who is correct? Justify your answer using mathematics. [3 Marks]

If it's a right triangle then the Pythagorean Theorem should be true.

$5^2 + 7^2 = 9^2$   
 $25 + 49 = 81$   
 $74 \neq 81$   
 Since the Pythagorean Theorem isn't true the triangle is not a right triangle and Lois is correct.



6. In the diagram, the area of square ABCD is  $36 \text{ cm}^2$  and side  $\overline{ED}$  is 8 cm. What is the length of side x? [3 Marks]



$\overline{AD} = \sqrt{36}$   
 $\overline{AD} = 6 \text{ cm}$

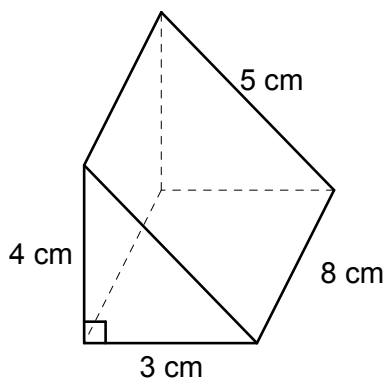
$x^2 = 8^2 + 6^2$   
 $x^2 = 64 + 36$   
 $x^2 = 100$   
 $x = \sqrt{100}$   
 $x = 10 \text{ cm}$

7. Simplify the following. Show all workings [3 Marks]

$$\left(\frac{4}{5} - \frac{3}{4}\right) \times \frac{5}{6} \div 2\frac{1}{2}$$

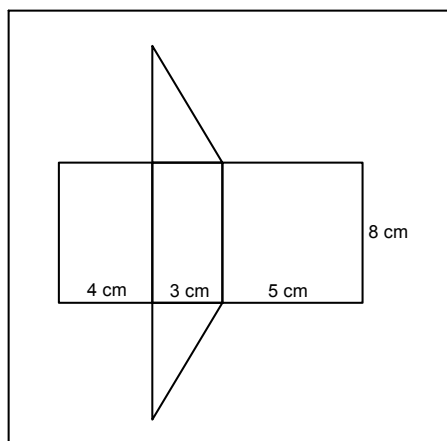
$\left(\frac{16}{20} - \frac{15}{20}\right) \times \frac{5}{6} \div \frac{5}{2}$   
 $= \frac{1}{20} \times \frac{5}{6} \div \frac{5}{2}$   
 $= \frac{1}{20} \times \frac{5}{6} \times \frac{2}{5}$   
 $= \frac{10}{600}$  or  $\frac{1}{60}$  Note: Students should not be penalized if answer isn't reduced.

8. For the triangular prism shown:



A. Sketch the net.

[1 Mark]



B. Calculate the surface area.

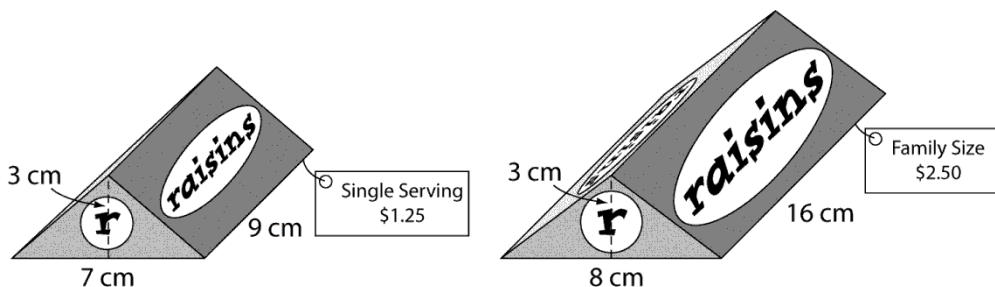
[2 Marks]

$$SA = 32 + 24 + 40 + 6 + 6$$

$$SA = 108 \text{ cm}^2$$

9. Raisins are sold in two different boxes. Which one is the better buy? Explain.

[3 Marks]



Methods Will Vary

$$\text{Volume of Single} = 94.5 \text{ cm}^3$$

$$\text{Volume of Family} = 192 \text{ cm}^3$$

$$\frac{\$1.25}{94.5 \text{ cm}^3} = \$0.0132/\text{cm}^3$$

$$\frac{\$2.50}{192 \text{ cm}^3} = \$0.0130/\text{cm}^3$$

Since the family size has the smaller unit price it is the better buy.

10. A giraffe can travel 200 metres in 25 seconds. An elephant can travel 300 metres in 35 seconds. Which animal is faster? Justify your answer. [2 Marks]

<p><b>Giraffe</b></p> $\frac{200 \text{ m}}{25 \text{ s}} = 8 \text{ m/s}$	<p><b>Elephant</b></p> $\frac{300 \text{ m}}{35 \text{ s}} = 8.6 \text{ m/s}$
<p><b>The Elephant is the faster animal.</b></p>	

11. A chess club had 12 members in its first year. The second year the membership was 150% of the first year. If the club had 11 boys the second year, how many girls did it have? [2 Marks]

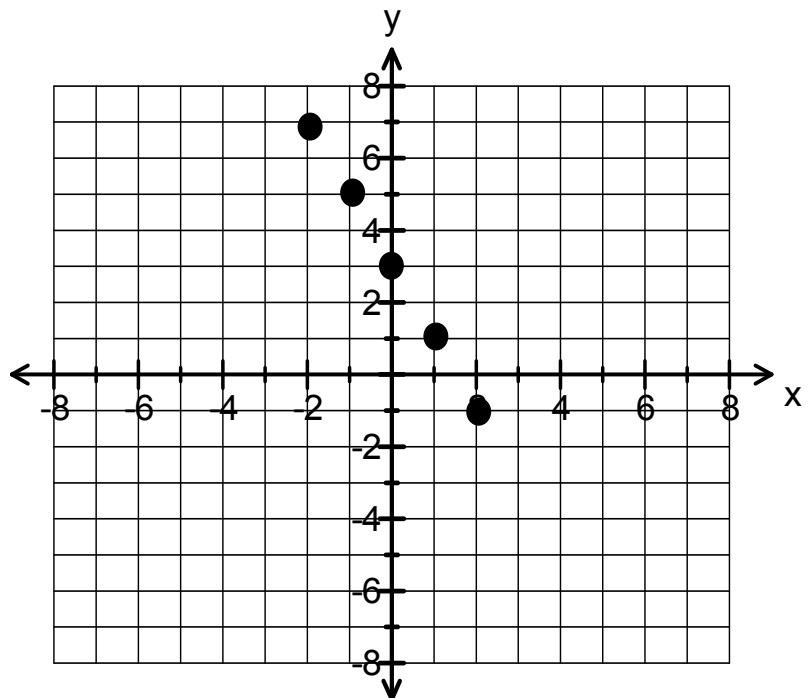
$12 \times 150\% = 18 \text{ members the second year.}$
$18 - 11 = 7$
$7 \text{ girls the second year.}$

12. Given the equation:  $y = -2x + 3$

A. Complete the table. [1 Mark]

B. Create a graph using the data in the table of values. [1 Mark]

x	y
-2	7
-1	5
0	3
1	1
2	-1



13. Solve for x:  $-3x - 4 = 8$  [2 Marks]

$$-3x - 4 + 4 = 8 + 4$$

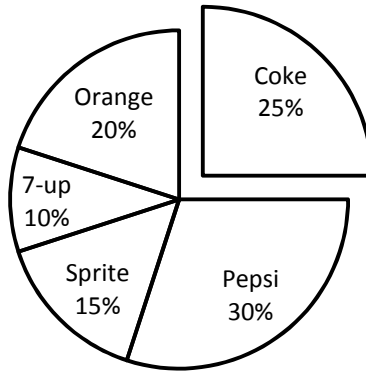
$$-3x = 12$$

$$\frac{-3x}{-3} = \frac{12}{-3}$$

$$x = -4$$

14. A group of grade 8 students were surveyed and asked what their favourite soft drink was. The results are graphed below.

### Favourite Soft Drink



- A. How is the graph misleading? [1 Mark]

The Coke section pulled out emphasizing it and it leads you to believe Coke is the most popular when in fact Pepsi is.

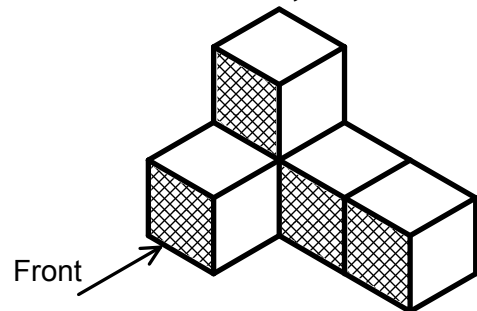
- B. Why would the creator of this graph choose to portray the data this way?

To make you believe Coke is the most popular.

[1 Mark]

15. Sketch and label the front, top, left side and right side views of the object.

[2 Marks]



Top

Left      Front      Right



16. The shape shown will not tessellate as it is drawn. How can it be made into a composite shape so that it will tessellate? Draw a picture of the new shape and sketch the tessellation on the grid. [3 Marks]

