

Year 8 Term 3 Homework

Student Name: _____	Grade: _____
Date: _____	Score: _____

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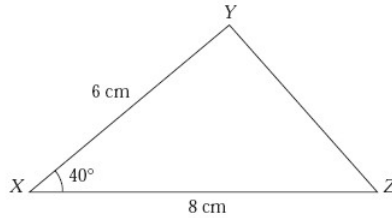
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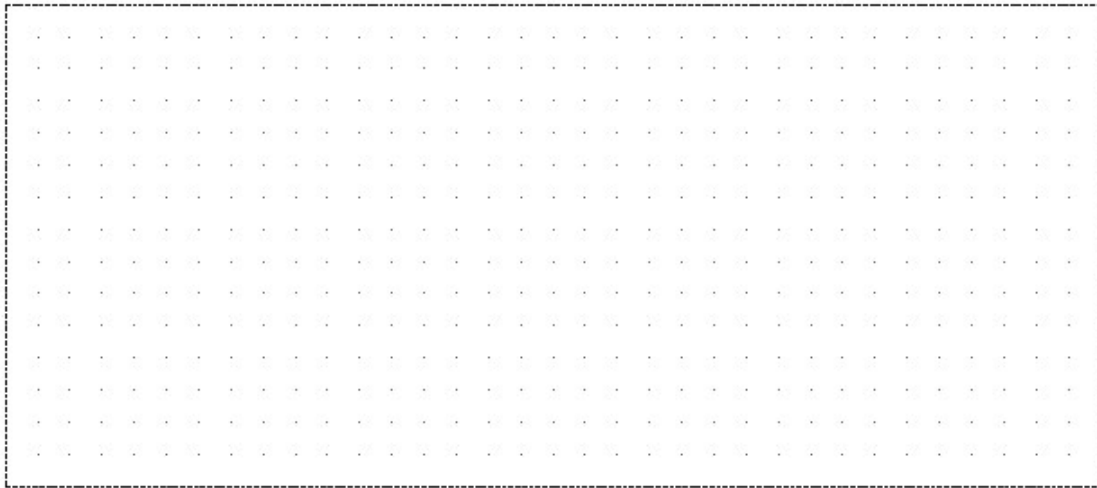
3 Year 8 Term 3 Week 3 Homework

3.1 Geometric Constructions

Exercise 3.1.1



1. More than one triangle can be constructed with sides 6 cm and 8 cm and an angle of 40°. $\triangle XYZ$ is one example. Construct another triangle that is not congruent to $\triangle XYZ$ and that has sides 6 cm and 8 cm and an angle of 40°.



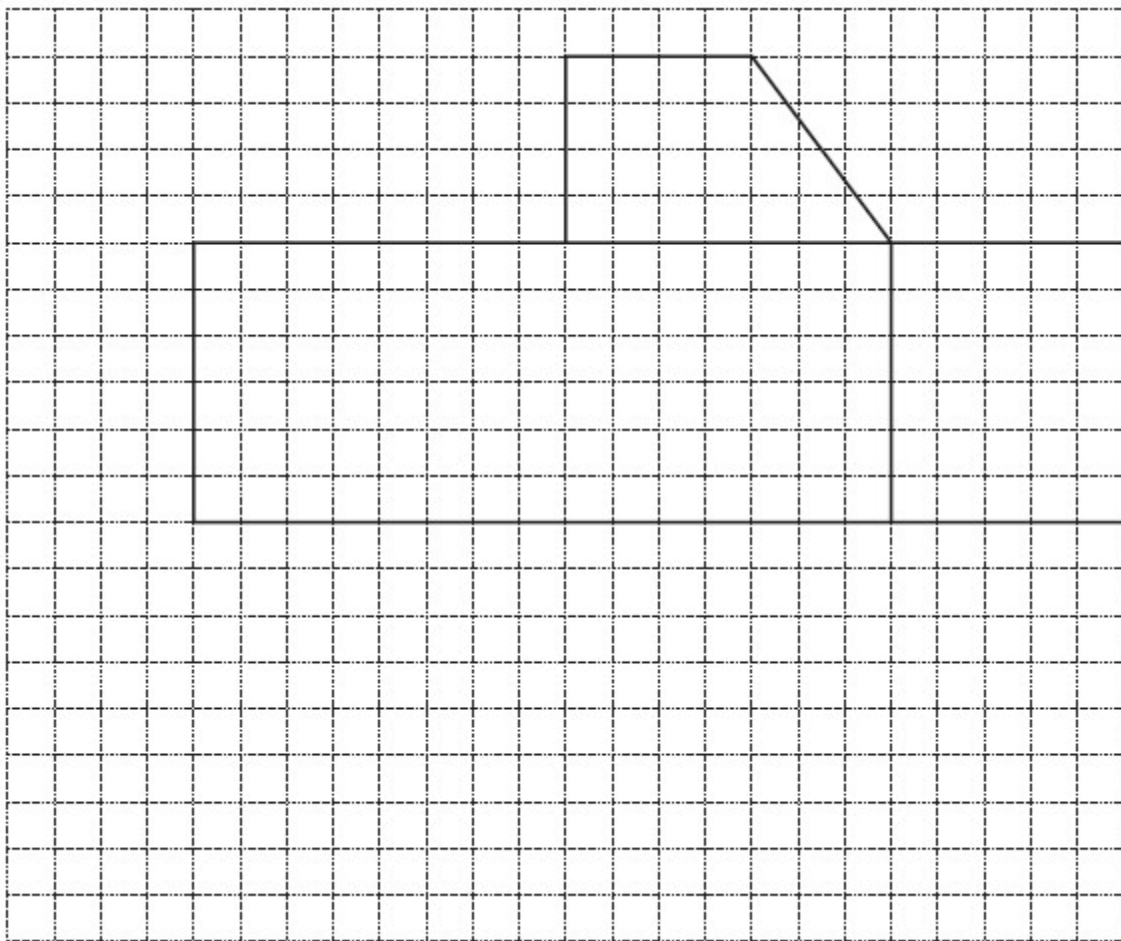
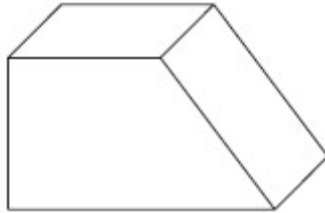
2. Construct a parallelogram 6 cm and 8 cm are the two sides of the parallelogram and 40° is the angle between these two lines.



3.2 Area and Volume

3.2.1 Surface area

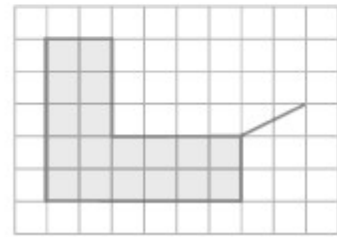
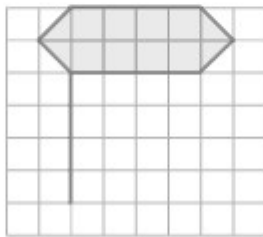
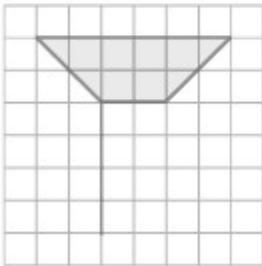
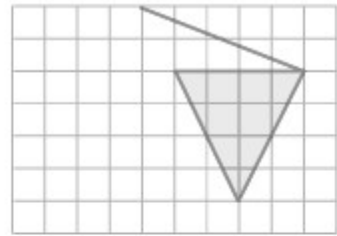
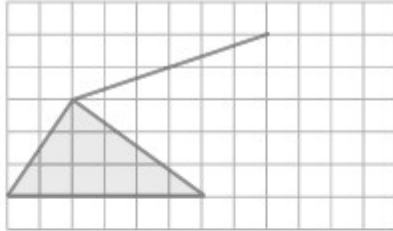
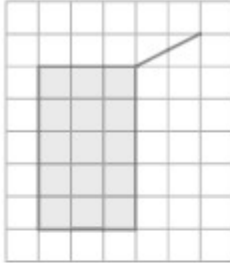
Exercise 3.2.1 Draw all lines to complete the net of the prism. If each square is 1 cm by 1 cm, find the total surface area of the prism.



3.2.2 Volume of prisms

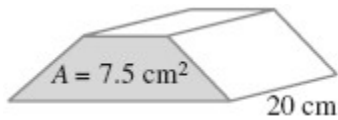
Exercise 3.2.2

1. Complete each of the following prisms, using the given cross-sections:

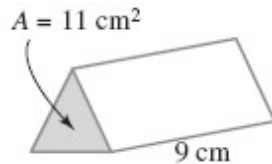


2. Find the volume of each prism by using $V = A \times h$:

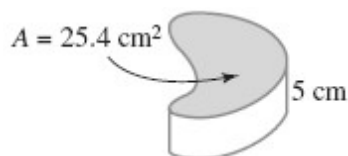
(a) Volume = _____



(b) Volume = _____

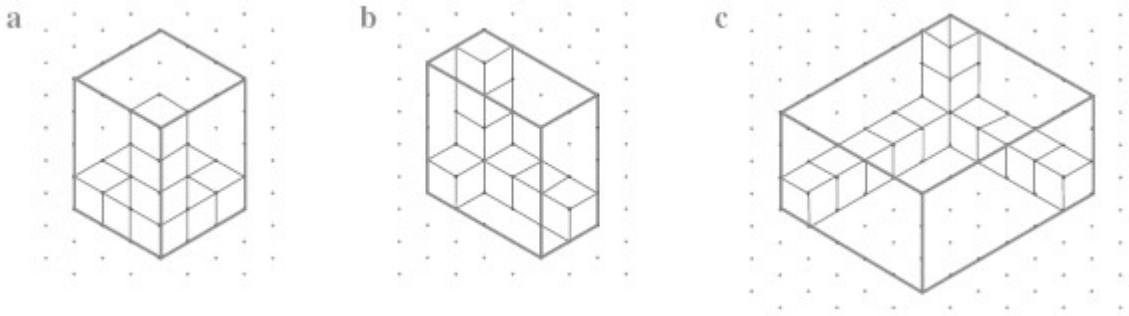


(c) Volume = _____



Exercise 3.2.3 Consolidation

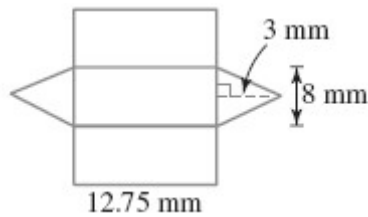
1. Find the volume of each rectangular prism, in cube units:



a. Volume = _____ , b. Volume = _____ , c. Volume = _____

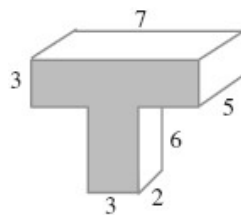
2. The net shown below is a triangular prism. Find the volume of the prism formed when this net is folded together.

Volume = _____

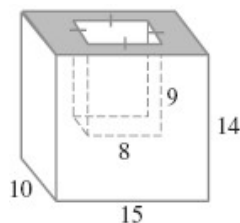


3. Find the volume of each solid by either adding or subtracting volumes: (All measurement are in cm.)

(a) Volume = _____



(b) Volume = _____



3.2.3 Volume and capacity

- 1 Litre = 1000 millilitres 1 L = 1000 mL
- 1 kilolitre = 1000 Litres 1kL = 1000 L
- $1 m^3 = 1000 L$
- $1 cm^3 = 1 mL$
- $1 L = 1000 cm^3$
- $1 m^3 = 1000,000 cm^3$

Exercise 3.2.4 Convert each of the following to the units given:

1. $12 L =$ _____ mL
2. $1.5 L =$ _____ mL
3. $12 kL =$ _____ L
4. $1.5 kL =$ _____ L
5. $0.05 kL =$ _____ L
6. $0.005 L =$ _____ mL
7. $25 L =$ _____ kL
8. $12 mL =$ _____ L
9. $125 mL =$ _____ L
10. $3628 L =$ _____ kL

Exercise 3.2.5 Simplify each of these, writing your answers in the next smallest unit:

1. $\frac{1}{4} kL =$ _____
2. $\frac{1}{5} L =$ _____
3. $3\frac{2}{5} kL =$ _____
4. $2\frac{3}{4} L =$ _____
5. $1\frac{1}{4} kL =$ _____

3.2.4 Mass (kg)

- Mass refers to the amount of matter that an object contains. This is not the same as weight.
- The weight of an object is the force with which it is being attracted to the Earth due to gravity.
- In fact, the weight of an object on Earth is numerically 10 times greater than its mass (kg).
- The units for weight are not kilograms, but Newtons (N).
- A mass of 50 kg actually weighs about 600 N on Earth.

The common conversions for the mass are:

1. 1 kg = 1000 g (1 kilogram = 1000 grams)
2. 1 t = 1000 kg (1 tonne = 1000 kilograms)
3. 1 g = 1000 mg (a gram = 1000 milligrams)
4. 1 L of water has a mass of 1 kg

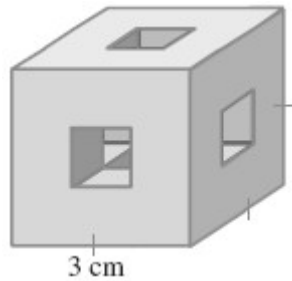
Exercise 3.2.6 Convert the following units:

1. 2.36 kg = _____ g
2. 1457 mg = _____ g
3. 825 g = _____ kg
4. 0.28 kg = _____ g
5. 0.003 g = _____ mg
6. 2.12 t = _____ kg
7. 23 kg = _____ t
8. 0.04 t = _____ kg
9. 2.004 kg = _____ g
10. $\frac{1}{5}$ t = _____ kg
11. $4\frac{3}{5}$ kg = _____ g
12. $5\frac{4}{5}$ g = _____ mg

3.2.5 Problem solving

Exercise 3.2.7

1. A cube of side 3 cm has square holes cut right through from each side of the cube. If the square openings measure 1 cm by 1 cm, find the remaining volume.



2. If the side lengths of a rectangular prism are double, how many times greater is the volume?

3. If the volume of a cube is 343 cm^3 , find its surface area.

4. If the surface area of a cube is 96 cm^2 , find its volume.

3.3 Miscellaneous Exercise

Exercise 3.3.1

1. If $x = -2$ and $y = -3$ find the value of $3x^3 - 5y^2$.

2. If $a = 2$, $b = -6$, $c = -1$, find the value of $\frac{3a-2b^2}{3c}$

3. If $\frac{p}{q} = \frac{1}{3}$, find the value of $\frac{p-q}{q}$.

4. Find the pattern rule:
- | | | | | |
|-----|----|---|---|----|
| x | -2 | 0 | 2 | 4 |
| y | 4 | 6 | 8 | 10 |

5. Find the pattern rule:
- | | | | | |
|-----|----|----|---|---|
| x | -1 | 0 | 1 | 2 |
| y | -3 | -1 | 1 | 3 |

6. Complete the table of values and write down the rule that expresses y as a function of x .

1	2	3	4	5	6
-3	0	3	6		

Exercise 3.3.2

1. Solve the following equations:

(a) $\frac{1}{2}x - 2 = \frac{2}{3} - 2x$.

(b) $\frac{x-3}{2} - \frac{x+4}{3} = 6$.

(c) $\frac{4}{x} - 5 = 3$.

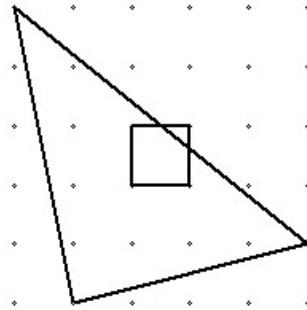
(d) $\frac{2}{x} - \frac{3}{4} = \frac{1}{x}$.

2. Convert $0.1\bar{3}$ into a simplest fraction.

3. Mrs. Lang wants to make 20 cupcakes. Her recipe for 9 cupcakes uses $1\frac{1}{2}$ cups of plain flour and 135g of butter. How much flour and butter will she need to make 20 cupcakes?

3.4 Maths Challenge

1. The dots are one centimetre apart. Find the area of the region common to both the triangle and the square.



2. How big is the angle between the hour hand and the minute hand of a clock at twenty to five?

3. In the diagram shown below the lengths $AD = BD = CD$ and the $\angle BCD = x^\circ$. What is the size of $\angle ABC$

