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

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This edition was printed on November 3, 2008.

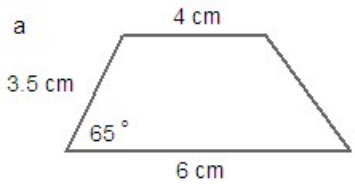
Camera ready copy was prepared with the **LaTeX2e** typesetting system.

10 Year 8 Term 3 Week 10 Homework

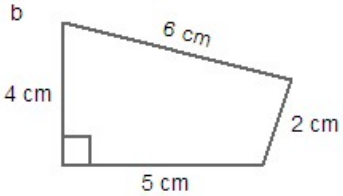
10.1 Geometric Constructions (Revision)

Exercise 10.1.1 Construct full-size drawings of these quadrilaterals:

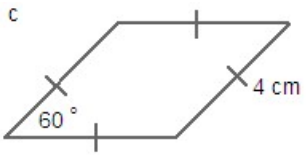
a



b

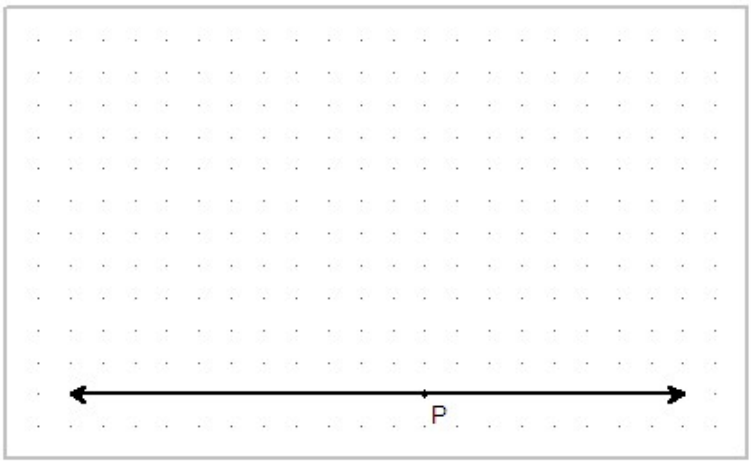


c

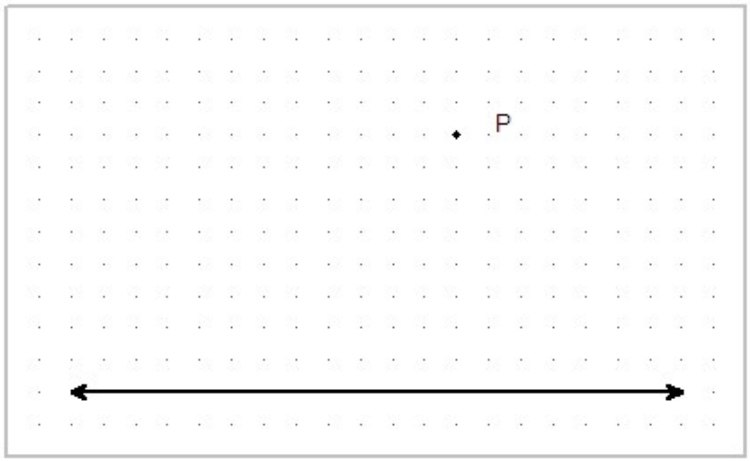


Exercise 10.1.2

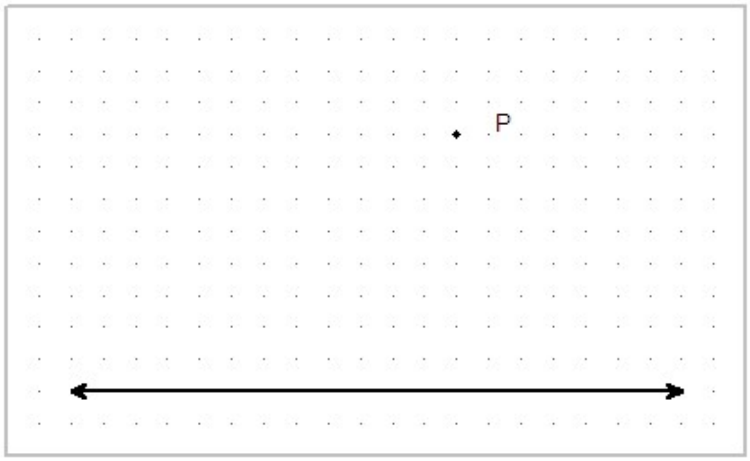
1. *Construct a perpendicular to this line at the point **P** by using a ruler and compass.*



2. *Construct a line through point **p**, parallel to this line by using a ruler and compass.*



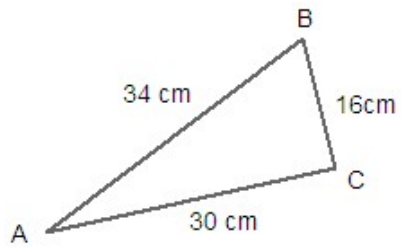
3. *Construct a perpendicular to this line through point P by using a ruler and compass.*



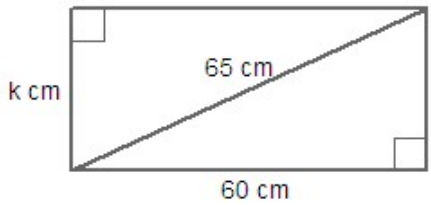
10.2 Area and Volume (Revision)

Exercise 10.2.1 Find the area of each of the following figures:

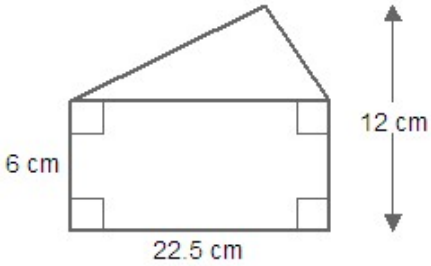
1. *Prove that the triangle ABC is a right-angle and hence find the area of the triangle.*



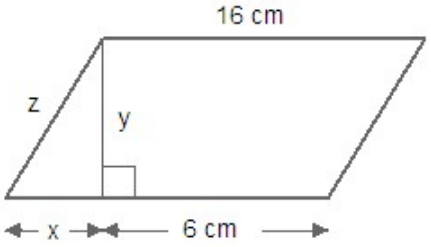
2. *Find the value of k and hence find the area of the rectangle.*



3. *Find the area of the figure, correct the answer to 1 decimal place.*



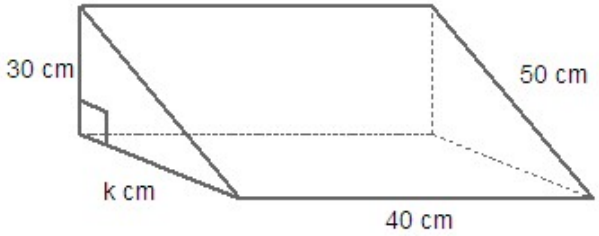
Exercise 10.2.2 This parallelogram has a perimeter of 72 cm. Find:



1. *the values of x, y and z, correct to 2 decimal places.*

2. *the area of the parallelogram, correct to 2 decimal places.*

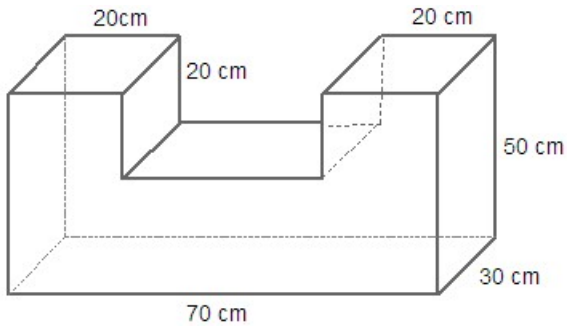
Exercise 10.2.3 Find the value of k and hence find the surface area and volume of the prism.



1. *Surface area =*

2. *Volume =*

Exercise 10.2.4 Find the surface area and volume of this figure.



1. *Surface area =*

2. *Volume =*

Exercise 10.2.5

A container in the shape of a rectangular prism measures 40 cm by 50 cm by 60 cm and has a mass of 21.5 kg when empty. Find the mass of the container when it is filled with water to two-thirds of its height.

10.3 Equations, inequations and formulae (Revision)

Exercise 10.3.1 If v = u + at, find the value of the following:

1. *v when u = -5, a = - 10 and t = 2.4*
2. *u when v = 60, a = 3.5 and t = 8*
3. *a when v = 44, u = 30 and t = 2*

Exercise 10.3.2 Solve the following equations:

1. $8(4x - 9) - 10x = 4$
2. $3(2x + 3) + 2(x - 2) = 24$
3. $3(2x - 9) = 5(7 + x)$
4. $\frac{x+2}{4} = 2x - 3$

Exercise 10.3.3 Number Problems

1. *10 more than one-third of a certain number is 44. Find the number.*

2. *3 less than 4 times a certain number is equal to 42 more than the number. Find the number.*

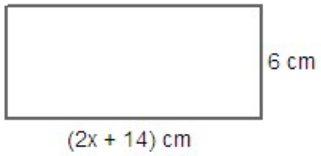
3. *The quotient of a number and four increased by 6 is 14. What is the number?*

4. *The sum of three consecutive even numbers is 108. Find the sum to the larger number and the small numbers.*

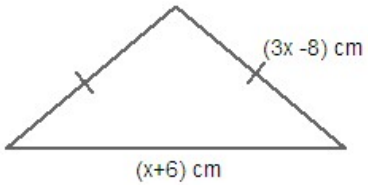
5. *The sum of the largest and eight times the smallest of three consecutive numbers is equal to 29, find the numbers.*

Exercise 10.3.4 Form an equation for each of these figures, then solve it to find the value of x.

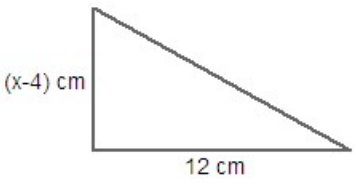
1. *Find the value of x if the perimeter of the rectangle is 80 cm.*



2. *Find the value of x if the perimeter of the triangle is 74 cm.*



3. *The area of the triangle is 72* cm^2



10.4 Ratios and rates (Revision)

Exercise 10.4.1 Write each of the following as a ratio:

1. $\frac{2}{5}$ _____
2. 0.8 _____
3. 1.2 _____
4. 27% _____

Exercise 10.4.2 Complete each of these equivalent ratios:

1. $3 : 8 = 15 :$ _____
2. _____ $: 8 = 56 : 32$
3. $45 :$ _____ $= 9 : 13$
4. $3 : 7 =$ _____ $: 28$

Exercise 10.4.3 Find as decimal the value of each pronumeral, correct to 2 decimal places:

1. $\frac{x}{3} = \frac{5}{8}$ _____
2. $\frac{4}{y} = \frac{3}{16}$ _____
3. $\frac{z}{6} = \frac{4}{15}$ _____

Exercise 10.4.4 Divide the following:

1. *$65 in the ratio 9 : 4* _____
2. *108 kg in the ratio 4 : 5* _____
3. *156 cm in the ratio 5 : 7* _____

Exercise 10.4.5

1. *Increase $102 in the ratio of 12 : 9* _____
2. *Decrease 72 kg in the ratio 5 : 9* _____
3. *Increase $100 in the ratio 13 : 10, then decrease the result in the ratio 7 : 10* _____

_____

Exercise 10.4.6

1. *The ratio of bananas to apples is 4 : 5 and the ratio of apples to tomatoes is 2 : 5. Find the ratio of bananas to tomatoes.*

2. *The ratio of the width of a rectangle to its length is 5 : 8. If the perimeter of the rectangle is 104 cm, find the area of the rectangle.*

3. *At the Grand Final, the ratio of Roosters supporters to Warriors supporters is 11 : 8. If there were 7740 more Roosters supporters than Warriors supporters. Find the number of Rosters supporters.*

Exercise 10.4.7 Express each of these rates in simplest form:

1. *350 km on 70 L*
2. *96 m in 12 s*
3. *\$150 in $2\frac{1}{2}$ h*

Exercise 10.4.8 Covert the following:

1. *12 m/s to m/min*
2. *48 kg/ha to g/m^2*
3. *320 mL/m^2 to L/m^2*
4. *75 ml/min to L/day*
5. *90 km/h to m/s*
6. *25 m/s to km/h*

Exercise 10.4.9

1. *A machine fills and seals coke cans at the rate of 180 cans per minute. How many cans will be filled and sealed in 2 hours and 20 minutes?*

2. *A fruit picker can pick 540 apples in 3 hours. At this rate, how long will the fruit picker take to pick 2100 apples?*

3. *A map is drawn with a scale of 1:1000. Find in metres, the actual distance between two buildings that are 7.2 cm apart in the map.*

Exercise 10.4.10 Using the unitary method to solve each of these problems:

1. *A car can travel 55 km in 5 L of petrol. How far will it travel on 19 L?*

2. *The scale on a road map is 1:250,000. Find, in kilometres the actual distance between two towns that are 7.5 cm apart on the map.*

3. *Find the map distance between two lakes if the scale on the map is 1 cm represents 3.5 km and the actual distance between the lakes is 119 km.*

4. *Ken drove at an average speed of 77 km/h for the first five hours of his journey. He then reduced his average speed by 14 km/h and continued for two hours before he reached his destination. Find the average speed for his whole journey.*