

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

Table of Contents

4 Year 8 Term 4 Week 3 Homework	1
4.1 Circles and Cylinders	1
4.1.1 Area of a sector	1
4.1.2 Volume of a cylinder	2
4.2 Linear relationships	3
4.2.1 The number plane	3
4.2.2 Straight line graphs	4
4.2.3 Linear equations	5
4.3 Miscellaneous Exercise	6
4.4 Maths Challenge	8

This edition was printed on November 17, 2008.

Camera ready copy was prepared with the **L^AT_EX₂ ϵ** typesetting system.

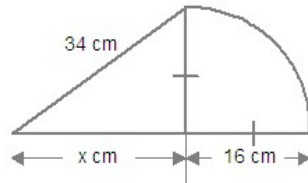
Copyright © 2000 - 2008 Yimin Math Centre (www.yiminmathcentre.com)

4 Year 8 Term 4 Week 3 Homework

4.1 Circles and Cylinders

4.1.1 Area of a sector

Exercise 4.1.1 For the following figure:

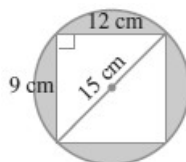


1. Find the value of x using Pythagoras' Theorem.

2. Hence, Calculate its perimeter, correct to 1 decimal place.

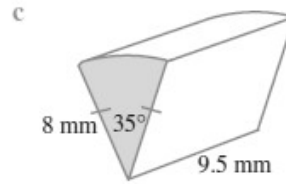
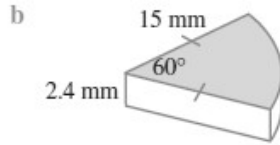
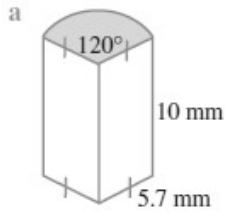
3. Find the total area, correct to 1 decimal place.

Exercise 4.1.2 Find the shaded area of the figure, correct to 1 decimal place.



4.1.2 Volume of a cylinder

Exercise 4.1.3 Find the volume of each solid, correct to the nearest mm^3



a *Volume* = _____

b *Volume* = _____

c *Volume* = _____

Exercise 4.1.4 A cylinder has an exact volume of $96\pi cm^3$. If the height is 6 cm, find the length of the radius.

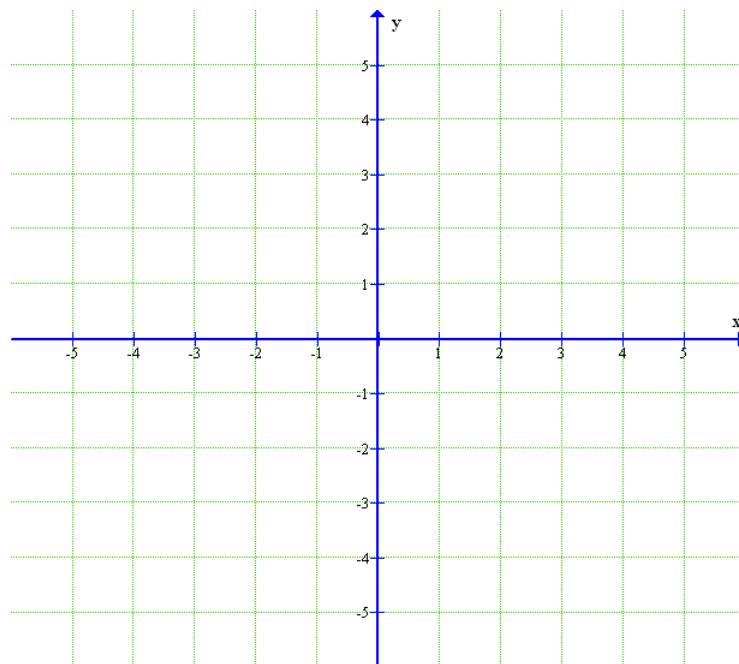
4.2 Linear relationships

4.2.1 The number plane

Exercise 4.2.1 In which quadrant of the number plane does each point lie?

1. $(3, 5)$ _____
2. $(-5, 7)$ _____
3. $(-3, -8)$ _____
4. $(4, -4)$ _____

Exercise 4.2.2 Plot the point $L(-2, 3)$, $M(-2, -1)$ and $N(2,1)$ on a number plane, then join the points to form a triangle.



1. What kind of triangle is LMN ? _____

2. Find the area of the triangle.

4.2.2 Straight line graphs

Exercise 4.2.3 Complete each table of values, then graph the equations on the same number plane.

1. $y = \frac{x}{4}$

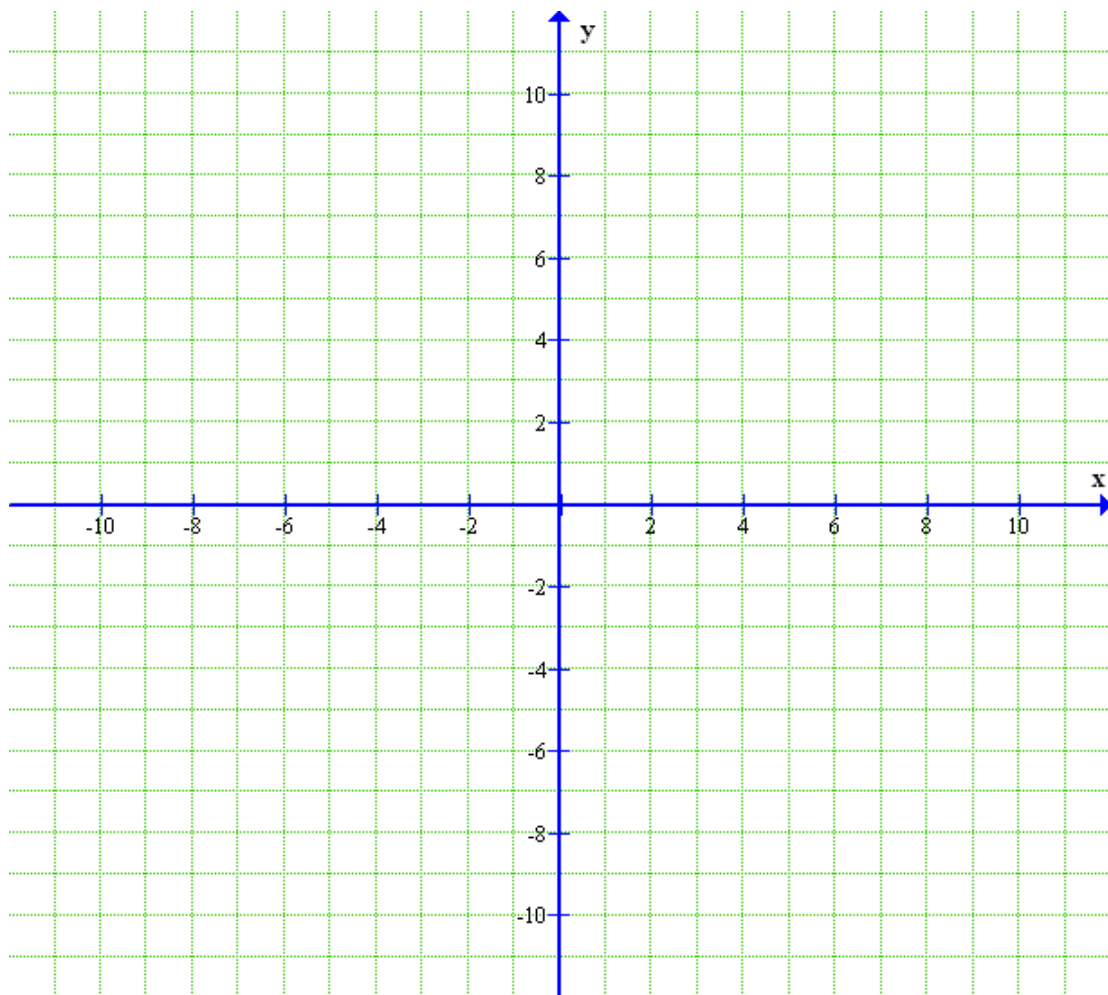
x	-4	-2	0	2
y				

2. $y = \frac{x}{2} + 4$

x	-2	0	2	4
y				

3. $y = -\frac{1}{2}x - 5$

x	-4	-2	0	2
y				



4.2.3 Linear equations

To find the equation of a line given its graph:

- form a table of x and y values using points that lie on the line
- write this relationship in the form $y = mx + b$ where m and b are numbers.

Exercise 4.2.4 Determine the equation of the line that passes through the point in each table:

1.

x	0	1	2	3	4
y	-2	-1	0	1	2

2.

x	-2	-1	0	1	2
y	4	3	2	1	0

3.

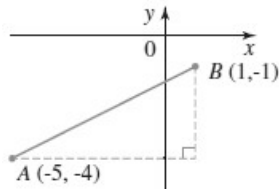
x	0	2	4	6	8
y	3	4	5	6	7

4.3 Miscellaneous Exercise

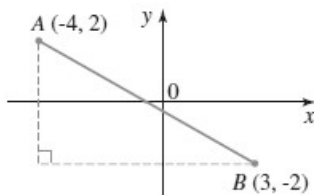
Exercise 4.3.1

1. Use Pythagoras' Theorem to find the length of the interval AB in each of these, correct to 1 decimal place:

(a) $AB =$ _____



(b) $AB =$ _____



2. Ken drove at an average speed of 77 km/h for the first 5 hours of his journey. He then reduced his average by 14 km/h and continued for 2 hours before he reached his destination. Find the average speed for his whole journey.

3. At 10:30 a.m. a cyclist started travelling on a road at an average speed of 60 km/h. At 2:30 p.m a motorist started from the same place travelling on the same road. If the motorist took 4 hours to catch up with the cyclist, find his average speed.

4. The average of x and y is $\frac{3}{4}y$. What is $\frac{x}{y}$?

5. What is the solution of equation $3y - 5y + 10 = 36$?

6. Simplify the expression $15 - 3[2 + 6(-3)]$.

7. What is the measure, in degrees, of each exterior angle of a regular hexagon?

8. If the circumference of a circle is doubled, the diameter of the circle will be:

(A) remains the same (B) is increased by 2 (C) is doubled (D) is multiplied by 4

9. If $x = 2a - b^2$, then a equals

(A) $\frac{x-b^2}{2}$ (B) $\frac{b^2-x}{2}$ (C) $\frac{x+b^2}{2}$ (D) $x + b^2$

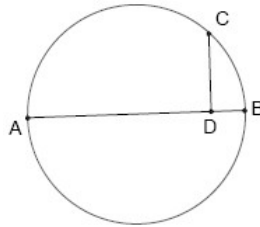
10. What is the value of w in the equation $\frac{1}{2}w + 7 = 2w - 2$?

(A) 2 (B) 6 (C) $3\frac{1}{3}$ (D) $3\frac{3}{5}$

4.4 Maths Challenge

Exercise 4.4.1

1. Given that D is a point on the diameter AB , where $AD = 8\text{ cm}$, $BD = 4\text{ cm}$ and $CD \perp AB$. If points A, B, C are joined to form a triangle, what is the area of the $\triangle ABC$?



2. A driver uses 9 litres of petrol for every 50 km he drives when his average driving speed is 80 km/h. He uses 6 litres of petrol for every 70 km he drives when his average driving speed is 50 km/h. How much petrol will he use for a journey which lasts 12 hours if he travels at 80 km/h for 5 hours and 50 km/h for the rest of the journey?

3. The probability that it rains while Susan is walking home from school is $\frac{1}{3}$; the probability the Susan remembers to take her umbrella is $\frac{3}{5}$. If these events are independent, what is the probability Susan gets wet walking home?

4. Jane and David started running together at the beginning of a cross-country trail. When David completed the trail in 40 minutes, Jane had run only $\frac{5}{8}$ of the trail. Jane's average speed for the race was 75m/min slower than David's.

(a) How long is the cross country trail?

(b) Find Jane's average speed in m/min.

5. Last week, Helen had a total of 600 foreign and local stamps. 30% of her stamps were local stamps. This week, her aunt gave her some more stamps. As a result, her foreign stamps increased by 20%. Now 60% of her stamps are local stamps. How many local stamps did she receive?

6. At 10:30 a.m., a car left Town A for Town B at an average speed of 86 km/h, while a bus left Town B for Town A at an average speed of 74 km/h. At 3.30 p.m., the two vehicles were 12 km apart. What is the distance between two towns?
