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Name:	Time taken:	Mark:

Assignment sheet – Y9.1.08

Instructions

Complete the questions below in the spaces provided.

Remember to show FULL WORKING – the best mathematician isn't the one who gives you the answer the quickest but is the one who proves that their answer is correct.

Remember to complete the self-assessment and to bring your answers to our next lesson.

Remember to review your notes prior to completing the assignment.

Materials required: Calculators **are** permitted. A compass and ruler is required.

Time allocation: 45 minutes.

The assignment

1. Simran-Lily invests $400 in a savings account which offers an interest rate of 2.3% compound interest every year. How much interest will she have earned after 4 years?

.....

[3]

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2. A colony of ant grows at a rate of 2% each year. If there are 24,480 ants this year, how many ants were there last year?

.....

[2]

3. The acceleration of a car can be calculated by using the formula:

$$a = \frac{v - u}{t}$$

Krish measures v to be 30m/s measured to the nearest 10

Rakhi measures u to be 15m/s measured to two significant figures

Samay measures t to be 0.8 measured to one decimal place

a. Complete the table below

	Lower bound	Upper bound
v		
u		
t		

[3]

b. Hence, calculate the maximum value of a

.....

[2]

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4. Simplify the following:

   a. $50x^{50} \div 2x^2$

   .....
   [2]

   b. $(5x^4)^2$

   .....
   [2]

5. Showing full working, evaluate each of the following:

   a. $(144)^{-\frac{1}{2}}$

   .....
   [2]

   b. $(2\frac{1}{4})^{-0.5}$

   .....
   [2]

   c. $(5)^0$

   .....
   [1]

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6. Find the equation of the line with a gradient of 5 which passes through the point $(2,11)$.

.....

[2]

7. Find the equation of the line which is parallel to the line with equation $y = 8 - 3x$, and passes through the point $(4,9)$.

.....

[3]

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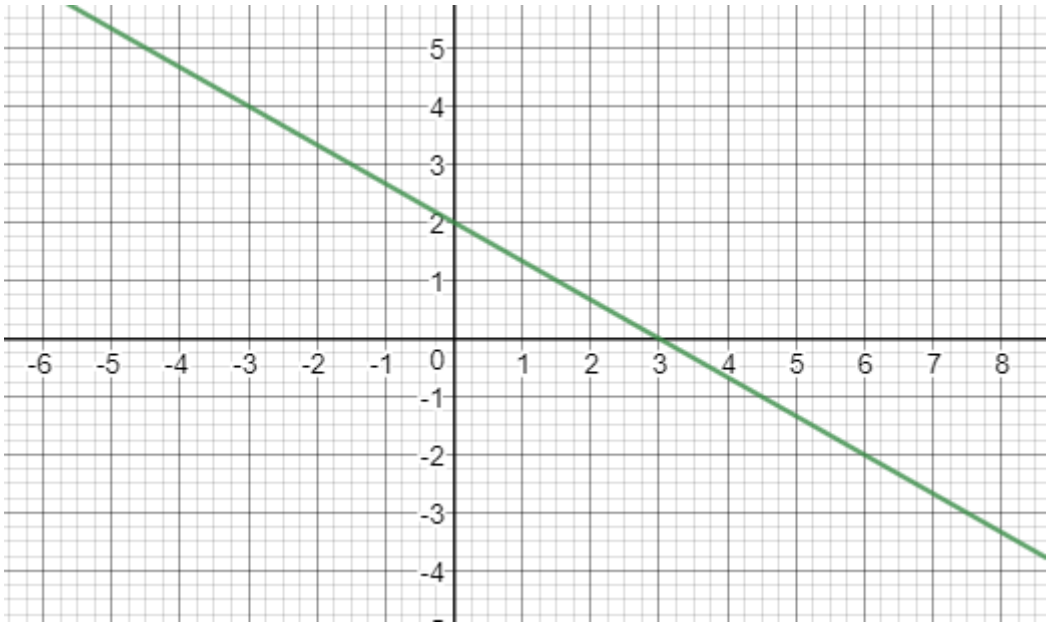
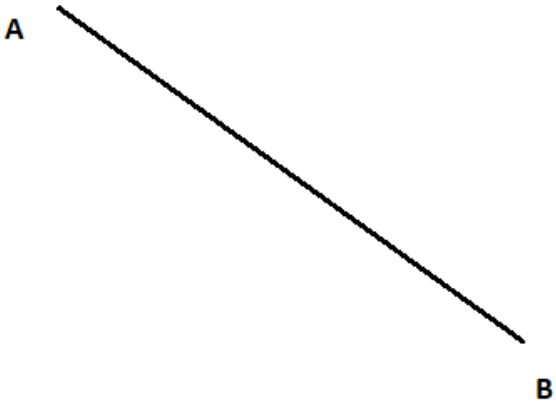
8. Write down the equation of the line shown below.



.....

[2]

9. In the space below, construct the set of points which are equidistant from A and B.



[2]

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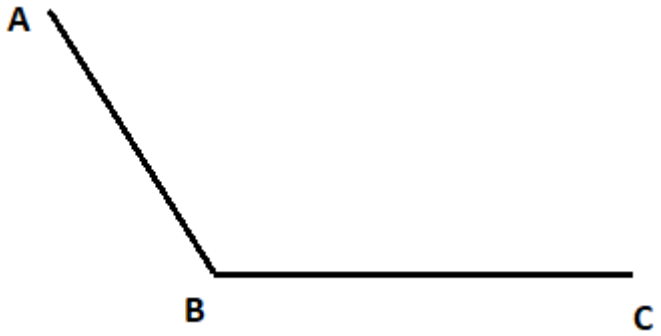
10. In the space below, construct the set of points which are equidistant from line AB and BC.



[2]

11. Find the set of points that are 3cm away from the shape below.

[2]

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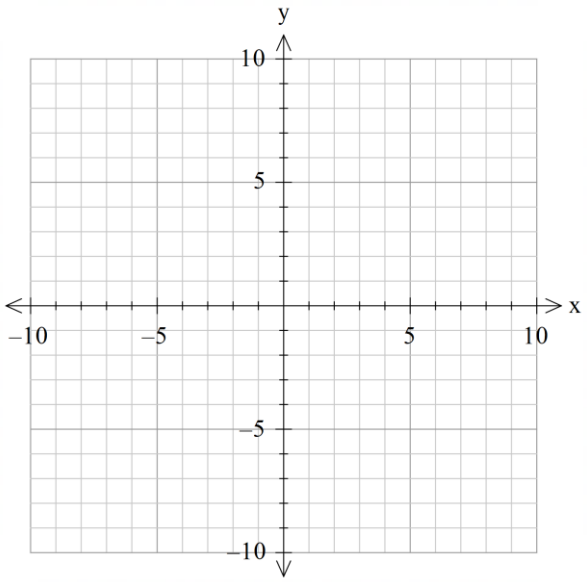
12. On the diagram below, draw the lines with equation:
    a. $x = 7$
    b. $y = 2x - 3$



[3]

13. Given that $8 = 2^3$, find the value of n such that $8^6 = 2^{n+2}$

.....

[3]

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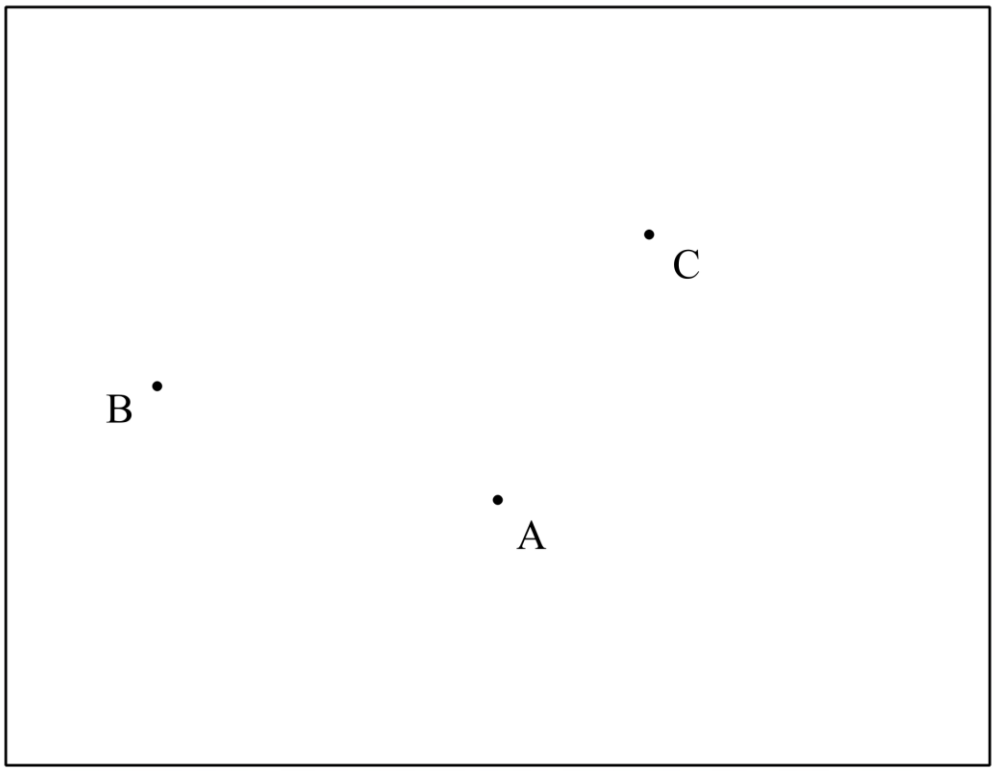
14. On the diagram below, shade the area inside the rectangle which is less than 4cm away from A and is closer to B than C.



[3]

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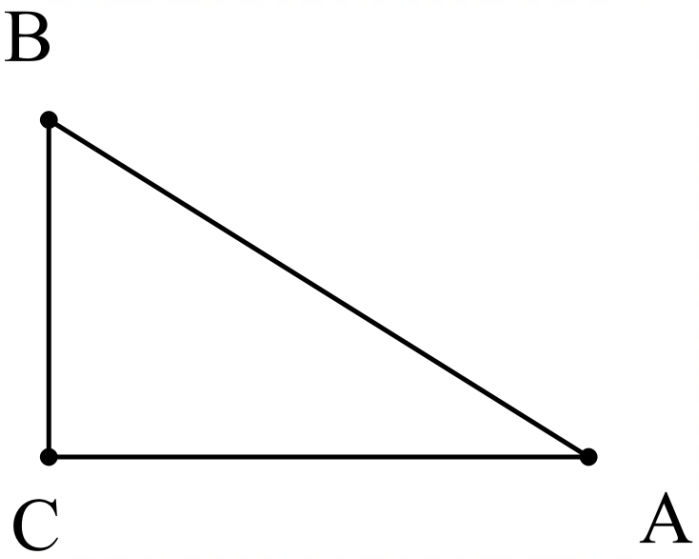
15. The diagram below shows a triangle ABC, such that AB = 7.5cm, AC = 6cm and BC = 4.5cm



a. Construct the angle bisector of angle ABC

[1]

b. Construct the angle bisector of angle CAB

[1]

c. The two bisectors cross at the centroid of the triangle. Label the centroid O.

[1]

d. Construct a circle with centre O which just touches the three sides of the triangle.

[1]

e. Label the point where the circle touches side AB as D.

[1]

f. By measuring the lengths of CO and OD, find the ratio CO:OD

.....

[1]

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16. The upper bound of the area of a circle is $18.0625\pi\ cm^2$. Given that the radius of the circle is accurate to the nearest $0.1cm$, find the lower bound for the circumference of the circle, giving your answer in terms of π.

.....

[3]

END OF ASSIGNMENT

TOTAL – 50 marks

Self-assessment

Tick the appropriate boxes in the table below

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I was able to complete this assignment easily					
I put in a lot of effort in completing this assignment					
I am comfortable with the material in this unit					