



# Mathematics

## Year 9 Half Yearly

### 2010

Time allowed – 70 minutes

Non calculator 15 minutes

Calculator 55 minutes

#### Instructions

- Approved calculators only may be used.
- All necessary working must be shown. Marks may not be awarded for careless or badly arranged work.
- Marks awarded are shown on each question.
- Total marks –

Non Calculator	Algebra I	Algebra II	Probability	Geometry I	Geometry II	Total
/25	/17	/13	/14	/12	/9	/90

# Part A Algebraic Expressions I

Total 17 marks

Simplify the following:

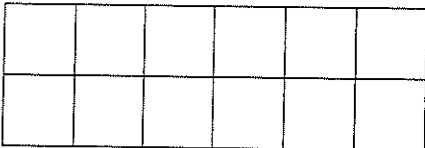
1) $m \times 5n \times 6$ (1)	2) $15a \div 5$ (1)	3) $16a \div 4a$ (1)
$\frac{2}{3} \times \frac{9u}{10}$ (1)	4) $\frac{m}{6} \div \frac{n}{3}$ (1)	5) $\frac{3y}{h} \div \frac{9y^2}{10h}$ (1)
6) $\frac{5}{k} - \frac{2}{k}$ (1)	7) $\frac{x}{3} + \frac{x+1}{5}$ (2)	8) $\frac{3}{2w} - \frac{5}{3w}$ (2)
9) $\frac{3a}{5} + \frac{2b}{3}$ (2)	10) $\frac{1}{4y} \times \frac{x}{y} \div \frac{xy}{3}$ (2)	

Expand and Simplify:-

11) $20 + 3(h - 8)$ (1)	12) $-3k(1 - 2k^2)$ (1)
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## Part A Number – Non Calculator

**Simplify:**

1. $8 - 12 + 1$  (1)	2. $4 - (-5) - 6$  (1)	3. $(-7)^2$  (1)
4. $\frac{-24}{-8}$  (1)	5. Arrange $\frac{3}{4}, \frac{2}{3}, \frac{9}{10}, \frac{3}{5}$ in ascending order  (1)	6. $\left(\frac{2}{3}\right)^2$  (1)
7. $\frac{3}{4}$ of 5m (answer in cm)  (1)	8. Shade $\frac{2}{3}$ rds   (1)	9. Round off correct to 2 decimal places:  42.999995  (1)
10. 457 is correct to how many significant numbers?  (1)	11. Add $0.\dot{3}$ to $\frac{1}{2}$  (1)	12. Express 231% as a decimal  (1)
13. Complete:  $2\frac{1}{2} : \frac{3}{5} = \square :$  (1)	14. Complete:  $\frac{7}{10} = \frac{14}{\quad} = \frac{\quad}{50}$  (1)	15. Simplify  30 min : 5 h  (1)
16. Divide \$240 in the ratio 5 : 7  (1)	17. Express 0.0045 as a fraction  (1)	18. Express $2\frac{19}{50}$ as a decimal  (1)

19. Leila has repaid \$3500. If this represents  $\frac{5}{7}$  of her loan, what was the original amount of the loan?  
(1)

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20. Sheila went to the supermarket and bought 3 kg of tomatoes. If 5 kg of tomatoes cost \$1.95, how much change would Sheila receive from \$10.00?

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(1)

21. In a game of netball, Chris scored 42 goals, which was 21% of the team's score. How many goals did the team score?

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(1)

22. Convert 0.3 hours to minutes.

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(1)

23. The ratio of Luke's height to Ben's height is 11 : 12. If the difference in their heights is 15 centimetres, how tall is Ben?

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(1)

24. On a map, Sydney and Bathurst are 5 cm apart. If the distance between the two cities is 200 km, what is the scale of the map?

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(1)

25. Robert wishes to download a 6000 kilobyte file. His internet connection has a speed of 20 kilobytes per second. How many minutes will it take to download this file?

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(1)

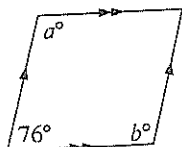
## Part D Deductive Geometry II

12 marks

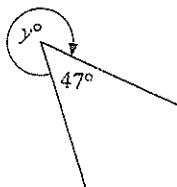
1) State the value of the pronumeral with reasons

(6)

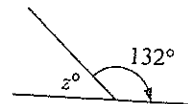
a



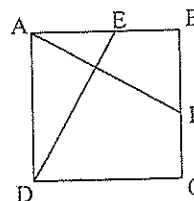
b



c

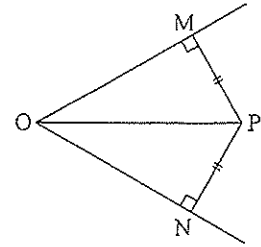


2) ABCD is a square. If  $AE = BF$  show that  $DE = AF$   
(HINT: Prove  $\triangle AED \cong \triangle BFA$ )



(3)

- 3) In the figure alongside P is equidistant from OM and ON, i.e.,  $PM = PN$ . Show that OP bisects angle MON



(3)

Name : SOLUTIONS

SYDNEY TECHNICAL HIGH SCHOOL

YEAR 9 YEARLY EXAMINATION 2009

# MATHEMATICS

PAPER B

SECTION 2 : Multiple Choice Answer Sheet ☺

## Instructions:

Do not start section 2 until instructed.

You have 35 minutes for this section.

Circle the letter that best answers the question.

- |     |                                    |                                    |                                    |                                    |     |                                    |                                    |                                    |                                    |
|-----|------------------------------------|------------------------------------|------------------------------------|------------------------------------|-----|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| 1.  | A                                  | B                                  | C                                  | <input checked="" type="radio"/> D | 16. | A                                  | B                                  | <input checked="" type="radio"/> C | D                                  |
| 2.  | A                                  | B                                  | <input checked="" type="radio"/> C | D                                  | 17. | A                                  | <input checked="" type="radio"/> B | C                                  | D                                  |
| 3.  | <input checked="" type="radio"/> A | B                                  | C                                  | D                                  | 18. | <input checked="" type="radio"/> A | B                                  | C                                  | D                                  |
| 4.  | A                                  | <input checked="" type="radio"/> B | C                                  | D                                  | 19. | A                                  | <input checked="" type="radio"/> B | C                                  | D                                  |
| 5.  | A                                  | <input checked="" type="radio"/> B | C                                  | D                                  | 20. | A                                  | B                                  | <input checked="" type="radio"/> C | D                                  |
| 6.  | A                                  | B                                  | C                                  | <input checked="" type="radio"/> D | 21. | <input checked="" type="radio"/> A | B                                  | C                                  | D                                  |
| 7.  | A                                  | <input checked="" type="radio"/> B | C                                  | D                                  | 22. | <input checked="" type="radio"/> A | B                                  | C                                  | D                                  |
| 8.  | A                                  | <input checked="" type="radio"/> B | C                                  | D                                  | 23. | A                                  | B                                  | <input checked="" type="radio"/> C | D                                  |
| 9.  | <input checked="" type="radio"/> A | B                                  | C                                  | D                                  | 24. | A                                  | B                                  | C                                  | <input checked="" type="radio"/> D |
| 10. | A                                  | <input checked="" type="radio"/> B | C                                  | D                                  | 25. | <input checked="" type="radio"/> A | B                                  | C                                  | D                                  |
| 11. | <input checked="" type="radio"/> A | B                                  | C                                  | D                                  | 26. | A                                  | B                                  | <input checked="" type="radio"/> C | D                                  |
| 12. | <input checked="" type="radio"/> A | B                                  | C                                  | D                                  | 27. | A                                  | B                                  | C                                  | <input checked="" type="radio"/> D |
| 13. | A                                  | B                                  | <input checked="" type="radio"/> C | D                                  | 28. | A                                  | B                                  | C                                  | <input checked="" type="radio"/> D |
| 14. | A                                  | B                                  | C                                  | <input checked="" type="radio"/> D | 29. | A                                  | B                                  | C                                  | <input checked="" type="radio"/> D |
| 15. | <input checked="" type="radio"/> A | B                                  | C                                  | D                                  | 30. | A                                  | B                                  | C                                  | <input checked="" type="radio"/> D |

C

C