



**2014
YEAR 8
YEARLY EXAMINATION**

Mathematics

Name

Teacher

General Instructions

- Working Time – 70 MINUTES
- Write using a blue or black pen.
- Approved calculators may be used.
- Use pencil to draw or complete diagrams and graphs
- All necessary working should be shown for every question.

Section 1		30
Section 2		36
Total		66

Section One - Multiple choice questions

1. Out of the following, which is 15 more than twice x ?

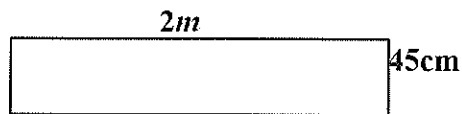
(A) $x + 15$

(B) $15x + 2$

(C) $2x + 15$

(D) $2x - 15$

2. The area of this rectangle is



(A) 0.9 cm^2

(B) 0.9 m^2

(C) 90 cm^2

(D) 90 m^2

3. The ratio of boys to girls in a class is 3:2. Today there 12 boys in the class. Tomorrow 2 new boys will be enrolled.

The ratio of boys to girls will be

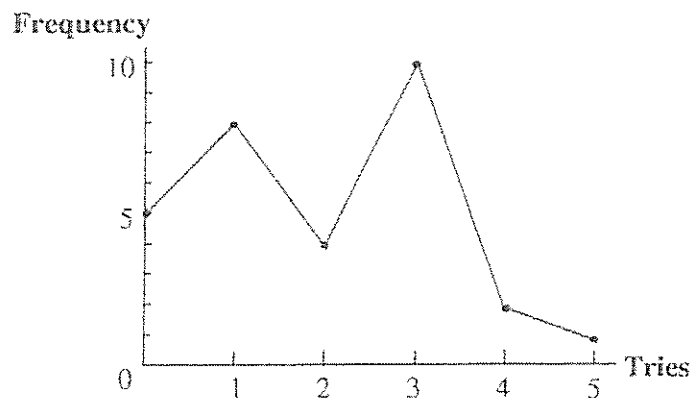
(A) 5:2

(B) 7:1

(C) 7:4

(D) 7:9

4. The graph below shows the number of tries scored by Year 8 rugby league team in a season



What is the total number of tries in the season?

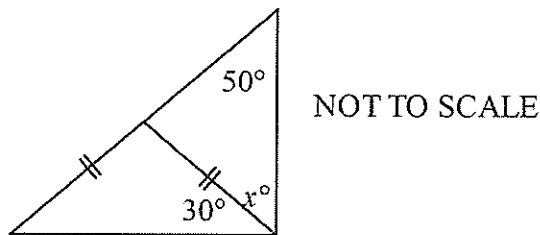
(A) 5

(B) 10

(C) 32

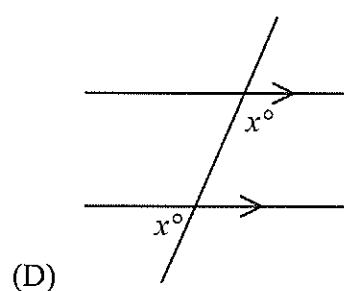
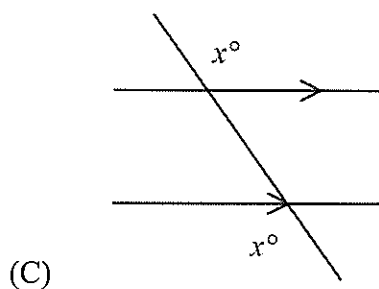
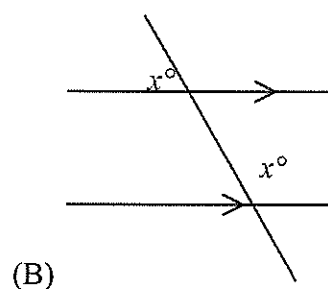
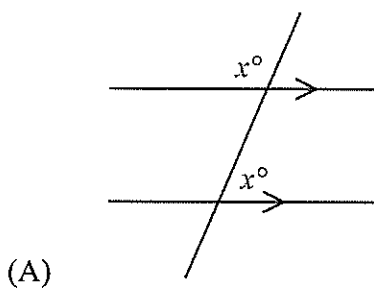
(D) 59

5. The value of x is



- (A) 50 (B) 60 (C) 65 (D) 70

6. In which of the following would x be equal?



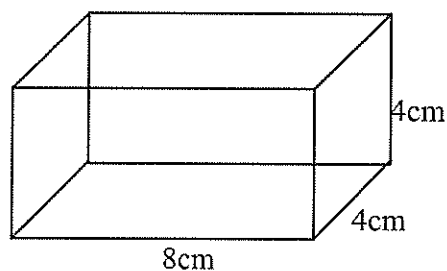
7. $8w^{12} \div 2w^6$

- (A) $6w^{12}$ (B) $4w^6$ (C) $6w^3$ (D) $4w^3$

8. $-4a + 6b + 2a - b =$

- (A) $-2a + 5b$ (B) $-2a - 5b$ (C) $-6a + 5b$ (D) $-6a - 5b$

9. A solid wooden block is in the shape of a rectangular prism with the dimensions shown



NOT TO SCALE

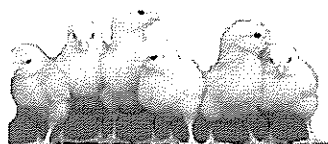
What is the surface area of this block?

- (A) 80 cm^2 (B) 96 cm^2 (C) 128 cm^2 (D) 160 cm^2
-

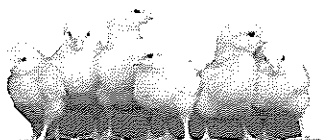
10. On which line does the point $(2, -3)$ lie?

- (A) $y = x + 5$
(B) $y = -2x + 1$
(C) $x + y - 1 = 0$
(D) $3x + 2y - 12 = 0$
-

11. The ratio of hens to baby chickens on a farm is 15:4



The ratio of baby chickens to eggs on the same farm is 6:5



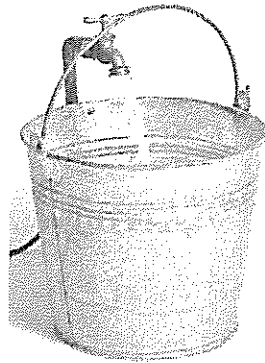
What is the ratio of hens to eggs on this farm?

- (A) 9:2 (B) 3:1 (C) 25:8 (D) 2:1
-

12. Evaluate ab^2 given that $a = 2$ and $b = -3$

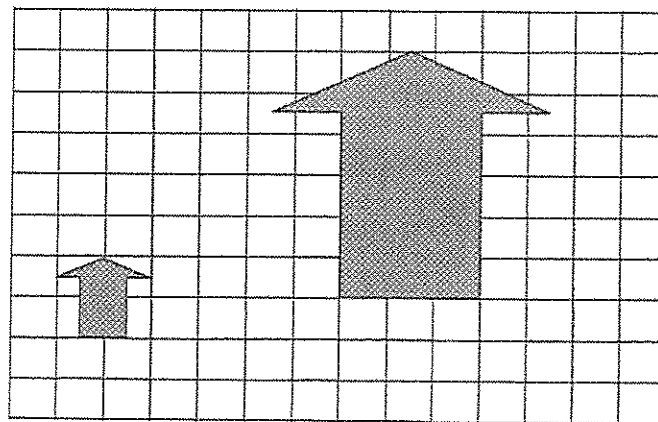
- (A) -36 (B) -18 (C) 18 (D) 36
-

13. It takes 20 seconds to fill a litre bucket with water. What is the rate of flow in litres per hour?



- (A) 30 (B) 180 (C) 200 (D) 1800
-

14. What is the scale of the enlargement used in the diagram?



- (A) 1:3 (B) 1:2 (C) 2:3 (D) 1:4
-

15. The median of this set of scores is

Score	Frequency
1	8
2	5
3	5
4	3
5	3

- (A) 1 (B) 2 (C) 2.5 (D) 3
-

16. On a map, Sydney and Bathurst are 5cm apart.

If the distance between the two cities is 200 km, what is the scale of the map?

- (A) 1:40 (B) 1:40000 (C) 1:400000 (D) 1:4000000
-

17. Solve the equation $-3(m - 2) = 18$

- (A) $m = -8$ (B) $m = -\frac{16}{3}$ (C) $m = -\frac{20}{3}$ (D) $m = -4$
-

18. Nathan left on a journey at 11 am. He travelled 234 km and arrived at his destination at 1:15pm.

What was his average speed for the journey, to the nearest kilometre per hour?

- (A) 72 (B) 74 (C) 104 (D) 109
-

19. For this set of scores, which of the following statements is correct?

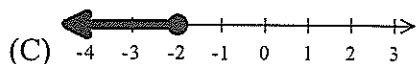
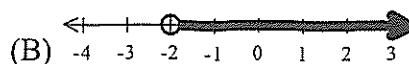
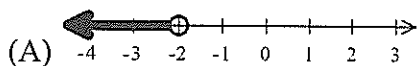
Score	Frequency
5	3
6	1
7	2
8	7

- (A) There are 4 scores and their mean is 6.5
(B) There are 4 scores and their mean is 7
(C) There are 13 scores and their mean is 6.5
(D) There are 13 scores and their mean is 7
-

20. $\frac{b}{3} \div \frac{2a}{5} =$

- (A) $\frac{5b}{6a}$ (B) $\frac{6a}{5b}$ (C) $\frac{2ab}{15}$ (D) $\frac{15}{2ab}$
-

21. The graph that illustrates the solution of $-4x > 8$ is



-
22. What is the value of $\frac{3.7 + 6.2}{10.6 + 4.1}$ correct to 2 decimal places?

(A) 0.67 (B) 4.12 (C) 5.03 (D) 8.38

-
23. Which of the following equations represent all the points that are four units to the left of the y-axis?

(A) $y = 4$ (B) $y = -4$ (C) $x = 4$ (D) $x = -4$

24. $\left(\frac{2d}{e}\right)^3$

(A) $\frac{6d^3}{e}$ (B) $\frac{6d^3}{e^3}$ (C) $\frac{8d^3}{e}$ (D) $\frac{8d^3}{e^3}$

-
25. The reciprocal of a is $\frac{1}{a}$.
What is the reciprocal of 4^{-2} ?

(A) $\frac{1}{16}$ (B) $\frac{1}{8}$ (C) 8 (D) 16

26. $3x - (x - 3y) =$

(A) $2x - 3y$ (B) $2x + 3y$ (C) $3 - 3y$ (D) $3 + 3y$

27. What is the mean of this set of score?

Score x	Tally	Frequency f	$f \times x$
1		10	10
2		6	12
3		2	6
4		1	4
5		3	15

- (A) $\frac{22}{5}$ (B) $\frac{47}{5}$ (C) $\frac{47}{15}$ (D) $\frac{47}{22}$
-

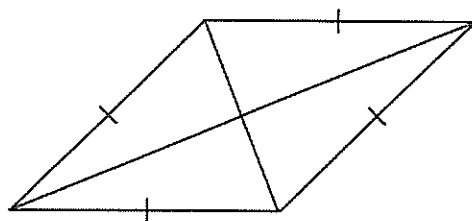
28. A straight line was created using the following table of values.

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

What are the x- and y-intercepts for this line?

- (A) x-intercepts = -4, y-intercepts = 2
 (B) x-intercepts = 0, y-intercepts = 0
 (C) x-intercepts = 2, y-intercepts = -4
 (D) x-intercepts = 3, y-intercepts = 3
-

29. The rhombus has an area of 24cm^2 .



NOT TO SCALE

What are possible lengths of the diagonals of the rhombus?

- (A) 3 cm and 4cm (B) 4 cm and 6cm
 (C) 4 cm and 12 cm (D) 8 cm and 12 cm
-

30. The survey of 200 students was taken to determine the main method of transport they use to get to school. The results appear in the table.

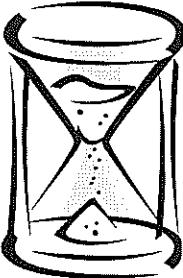
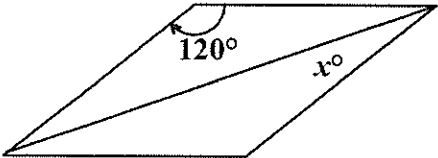
Bus	120
Walk	25
Train	40
Car	10
Other	5

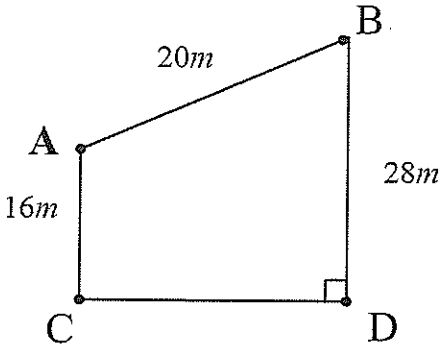
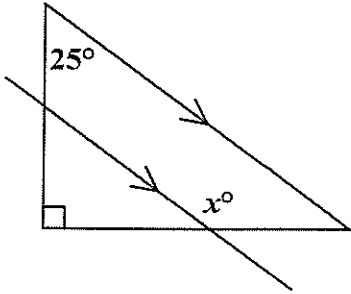
These results are to be represented in a sector graph. What would be the correct angle size of the sector representing student who catch the train school?

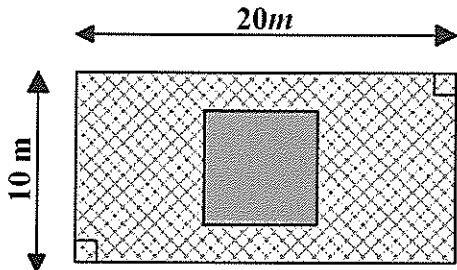
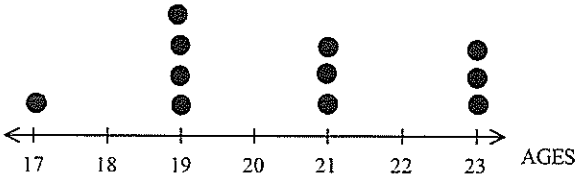
- (A) 20° (B) 40° (C) 72° (D) 144°
-

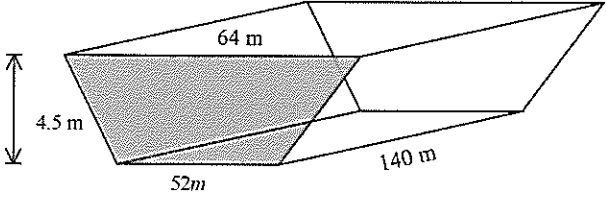
End of Multiple Choice

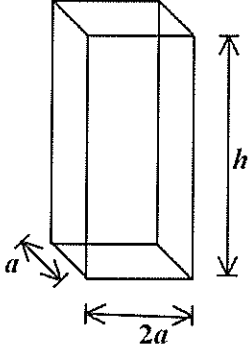
Section 2

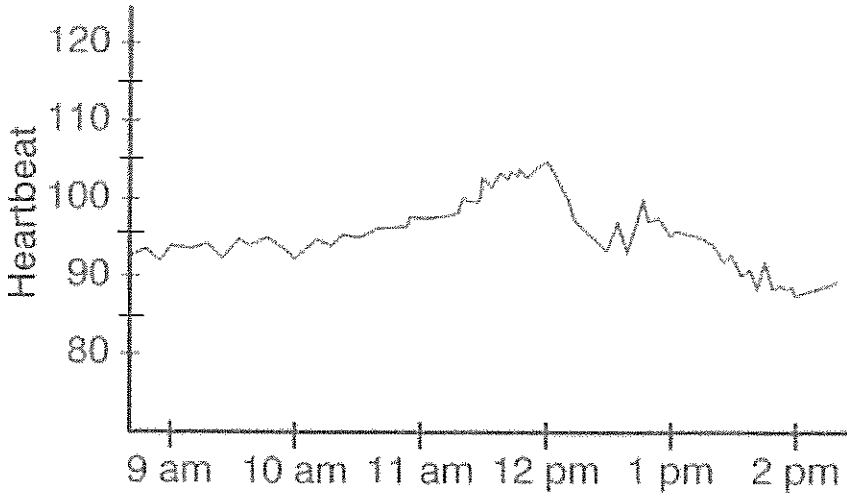
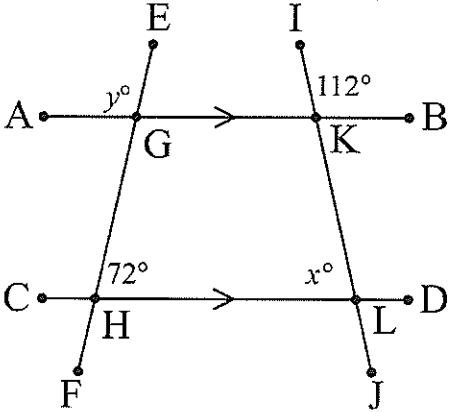
	Question	Solution	
1	Write the ratio 50ml:1L in simplest form		1
2	Solve $\frac{60 + x}{5} = 20$		1
3	What is the range of the numbers below? 5, -12, -10, 0, -6		1
4	<p>The sand in the timer flows at a rate of 3mg every 2 seconds.</p>  <p>At this rate, how long will it take the 15mg of sand to flow from the top to the bottom of the timer?</p>		1
5	<p>The diagram shows a rhombus with one angle of 120° marked</p>  <p>What is the size of the angle marked x in the diagram?</p>		1

6	James and Peter share \$500 so that James has \$120 more than Peter. What amount will James receive?	1
7	<p>A farmer builds a fence around a section of land to enclose his animals</p>  <p>What is the length (in metre) of the fence?</p>	1
8	<p>Find the value of x, giving reasons</p> 	2
9	<p>Solve for y:</p> $\frac{4}{y+5} = 50$	1

10	<p>The cost of hiring party equipment from Jacko's Party Hire is given by the formula $SC = 90 + 15t$ where 't' is the time in hours any equipment is hired for.</p> <p>What is the total cost of hiring party equipment from Friday 4:00pm until 2:00pm Saturday.</p>	1
11	<p>A paved section surrounding square garden has an area of $175m^2$.</p>  <p>What is the length (in metres) of one side of the garden?</p>	1
12	<p>Expand $-x(x - 5)$</p>	1
13	<p>The dot plot shows the ages of a group of soccer players</p>  <p>What is the median age of the soccer players?</p>	1

14	<p>The diagram shows a dam on a country property. The dam is in the shape of a prism. The cross-section of the prism is a trapezium as shown.</p>  <p>a) Find the area of the shaded end.</p> <p>b) Find the capacity of the dam in kilolitres (kL), given $1 \text{ m}^3 = 1 \text{ kL}$</p> <p>c) When full of water, the dam will provide irrigation for 63 days. Calculate the average quantity of water used per day.</p>	<p>a)</p> <p>b)</p> <p>c)</p>	3
15	<p>Simplify $-\frac{7w^5}{w^0}$</p>		1
16	<p>If it takes 176 palings to complete a 22 metre fence:</p> <p>a) How many palings will be needed for a 30m fence?</p> <p>b) How long a fence could be erected with 124 palings?</p>	<p>a)</p> <p>b)</p>	2

17	<p>The netball team had scored a mean of 18 goals per game after nine games. After the tenth game their mean was 18.7. How many goals did they score in their tenth game?</p>		1
18	<p>The sum of 3 consecutive integers is 165. Find the first number.</p>		1
19	<p>What is the total surface area, in square units, of this rectangular prism?</p> 		1
20	<p>Simplify $(4pq^3)^2$</p>		1

21	<p>The graph records a baby's heartbeat.</p>  <p>a) What was the highest rate? a).....</p> <p>b) When was the lowest rate recorded? b)</p> <p>c) What was the heartbeat at 10am? c)</p> <p>d) What rate was the heartbeat at the first test? d)</p>	4
22	<p>Calculate the value for x and y.</p>  <p>$x =$</p> <p>$y =$</p>	2
23	<p>Solve $3(a + 2) - 2(a + 1) = 6$</p>	1

24	<p>The shape shown is folded along the dotted line to form a box in the shape of a rectangular prism. All lengths are in centimetres.</p> <div></div> <p>What is the volume of the box in cubic centimetres?</p>	1												
26	<p>Factorise fully $15a^2b + 10ab^2$</p>	1												
27	<p>Put a number in each box so that the data has the mode of 321, median of 319 and has a range of 41</p> <table><tr><th>Stem</th><th>Leaf</th></tr><tr><td>29</td><td>5 8</td></tr><tr><td>30</td><td>9</td></tr><tr><td>31</td><td>6 6 8 <input type="text"/></td></tr><tr><td>32</td><td>0 1 1 <input type="text"/></td></tr><tr><td>33</td><td>3 3 <input type="text"/></td></tr></table>	Stem	Leaf	29	5 8	30	9	31	6 6 8 <input type="text"/>	32	0 1 1 <input type="text"/>	33	3 3 <input type="text"/>	<div><input type="text"/> =</div> <div><input type="text"/> =</div> <div><input type="text"/> =</div>
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33	3 3 <input type="text"/>													

End of Examination





SYDNEY TECHNICAL HIGH SCHOOL

MULTIPLE CHOICE ANSWER SHEET

Name :

Teacher:

Completely fill the response oval representing the most correct answer.

Do not remove this sheet from the answer booklet.

1. A ☐ B ☐ C ☐ D ☐

2. A ☐ B ☐ C ☐ D ☐

3. A ☐ B ☐ C ☐ D ☐

4. A ☐ B ☐ C ☐ D ☐

5. A ☐ B ☐ C ☐ D ☐

6. A ☐ B ☐ C ☐ D ☐

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18. A ☐ B ☐ C ☐ D ☐

19. A ☐ B ☐ C ☐ D ☐

20. A ☐ B ☐ C ☐ D ☐

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24. A ☐ B ☐ C ☐ D ☐

25. A ☐ B ☐ C ☐ D ☐

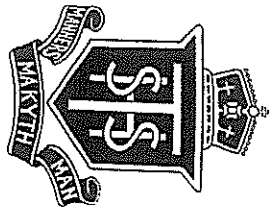
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30. A ☐ B ☐ C ☐ D ☐



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Mathematics

Name *SOLUTIONS*

Teacher

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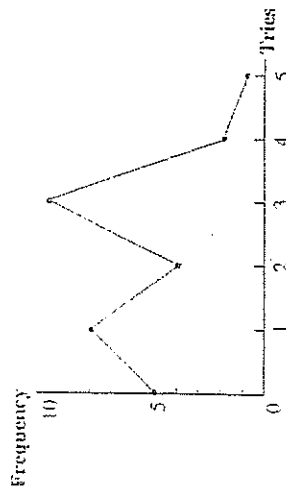
2. The area of this rectangle is  (A) 0.9 cm^2 (B) 0.9 m^2 (C) 90 cm^2 (D) 90 cm^2

3. The ratio of boys to girls in a class is 3:2. Today there 12 boys in the class. Tomorrow 2 new boys will be enrolled.

The ratio of boys to girls will be

- (A) 5:2 (B) 7:1 (C) 7:4 (D) 7:9

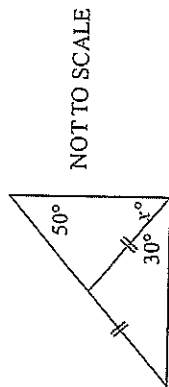
4. The graph below shows the number of tries scored by Year 8 rugby league team in a season



What is the total number of tries in the season?

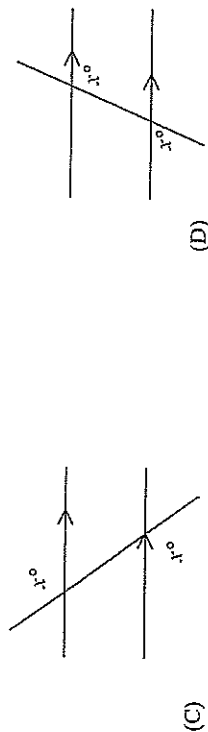
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5. The value of x is



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6. In which of the following would x be equal?



7. $8w^{12} \div 2w^6$

- (A) $6w^{12}$ (B) $4w^6$ (C) $6w^3$ (D) $4w^3$

8. $-4a + 6b + 2a - b =$

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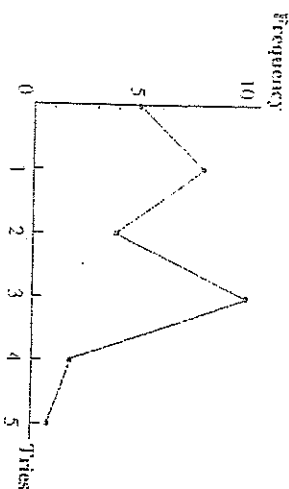
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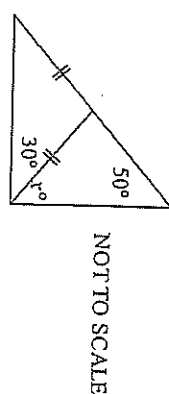
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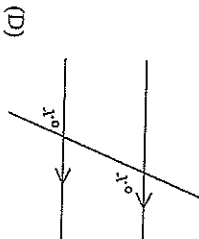
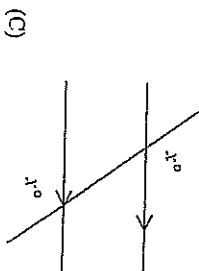
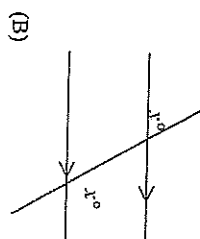
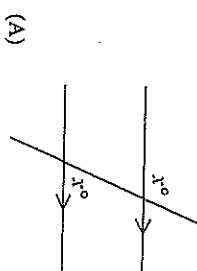
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(A) 50 (B) 60 (C) 65 (D) 70

6. In which of the following would x be equal?



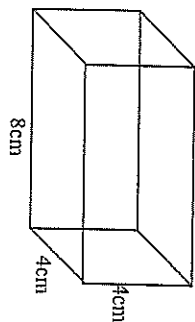
7. $8w^{12} \div 2w^6$

(A) $6w^{12}$ (B) $4w^6$ (C) $6w^3$ (D) $4w^3$

8. $-4a + 6b + 2a - b =$

(A) $-2a + 5b$ (B) $-2a - 5b$ (C) $-6a + 5b$ (D) $-6a - 5b$

9. A solid wooden block is in the shape of a rectangular prism with the dimensions shown



NOT TO SCALE

What is the surface area of this block?

- (A) 80 cm^2 (B) 96 cm^2 (C) 128 cm^2 (D) 160 cm^2

10. On which line does the point (2,-3) lie?

- (A) $y = x + 5$
 (B) $y = -2x + 1$
 (C) $x + y - 1 = 0$
 (D) $3x + 2y - 12 = 0$

11. The ratio of hens to baby chickens on a farm is 15:4



The ratio of baby chickens to eggs on the same farm is 6:5



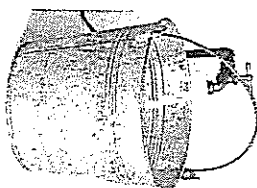
What is the ratio of hens to eggs on this farm?

- (A) 9:2 (B) 3:1 (C) 25:8 (D) 2:1

12. Evaluate ab^2 given that $a = 2$ and $b = -3$

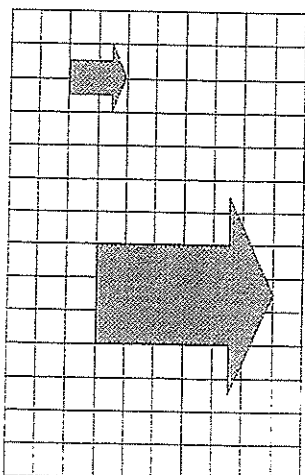
- (A) -36 (B) -18 (C) 18 (D) 36

13. It takes 20 seconds to fill a litre bucket with water. What is the rate of flow in litres per hour?



- (A) 30 (B) 180 (C) 200 (D) 1800

14. What is the scale of the enlargement used in the diagram?



- (A) 1:3 (B) 1:2 (C) 2:3 (D) 1:4

15. The median of this set of scores is

Score	Frequency
1	8
2	5
3	5
4	3
5	3

- (A) 1 (B) 2 (C) 2.5 (D) 3

16. On a map, Sydney and Bathurst are 5cm apart.

If the distance between the two cities is 200 km, what is the scale of the map?

- (A) 1:40 (B) 1:40000 (C) 1:400000 (D) 1:4000000

17. Solve the equation $-3(m-2) = 18$

- (A) $m = -8$ (B) $m = -\frac{16}{3}$ (C) $m = -\frac{20}{3}$ (D) $m = -4$

18. Nathan left on a journey at 11 am. He travelled 234 km and arrived at his destination at 1:15pm.

What was his average speed for the journey, to the nearest kilometre per hour?

- (A) 72 (B) 74 (C) 104 (D) 109

19. For this set of scores, which of the following statements is correct?

Score	Frequency
5	3
6	1
7	2
8	7

- (A) There are 4 scores and their mean is 6.5
 (B) There are 4 scores and their mean is 7
 (C) There are 13 scores and their mean is 6.5
 (D) There are 13 scores and their mean is 7

20. $\frac{b}{3} \div \frac{2a}{5} =$

- (A) $\frac{5b}{6a}$ (B) $\frac{6a}{5b}$ (C) $\frac{2ab}{15}$ (D) $\frac{15}{2ab}$

21. The graph that illustrates the solution of $-4x > 8$ is



22. What is the value of $\frac{3.7 + 6.2}{10.6 + 4.1}$ correct to 2 decimal places?

- (A) 0.67 (B) 4.12 (C) 5.03 (D) 8.38

23. Which of the following equations represent all the points that are four units to the left of the y-axis?

- (A) $y = 4$ (B) $y = -4$ (C) $x = 4$ (D) $x = -4$

24. $\left(\frac{2d}{e}\right)^3$

- (A) $\frac{6d^3}{e}$ (B) $\frac{6d^3}{e^3}$ (C) $\frac{8d^3}{e}$ (D) $\frac{8d^3}{e^3}$

25. The reciprocal of a is $\frac{1}{a}$.
 What is the reciprocal of 4^{-2} ?

- (A) $\frac{1}{16}$ (B) $\frac{1}{8}$ (C) 8 (D) 16

26. $3x - (x - 3y) =$

- (A) $2x - 3y$ (B) $2x + 3y$ (C) $3 - 3y$ (D) $3 + 3y$

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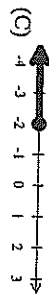
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8	7

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 (B) There are 4 scores and their mean is 7
 (C) There are 13 scores and their mean is 6.5
 (D) There are 13 scores and their mean is 7

20. $\frac{b}{3} + \frac{2a}{5} =$

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26. $3x - (x - 3y) =$

- (A) $2x - 3y$ (B) $2x + 3y$ (C) $3 - 3y$ (D) $3 + 3y$

27. What is the mean of this set of score?

Score x	Tally	Frequency f	$f \times x$
1		10	10
2	I	6	12
3		2	6
4		1	4
5		3	15

- (A) $\frac{22}{5}$ (B) $\frac{47}{5}$ (C) $\frac{47}{15}$ (D) $\frac{47}{22}$

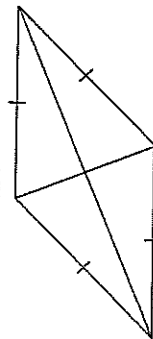
28. A straight line was created using the following table of values.

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

What are the x - and y -intercepts for this line?

- (A) x -intercepts = -4, y -intercepts = 2
 (B) x -intercepts = 0, y -intercepts = 0
 (C) x -intercepts = 2, y -intercepts = -4
 (D) x -intercepts = 3, y -intercepts = 3

29. The rhombus has an area of 24cm^2 .



NOT TO SCALE

What are possible lengths of the diagonals of the rhombus?

- (A) 3 cm and 4 cm
 (B) 4 cm and 6 cm
 (C) 4 cm and 12 cm
 (D) 8 cm and 12 cm

30. The survey of 200 students was taken to determine the main method of transport they use to get to school. The results appear in the table.

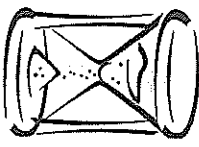
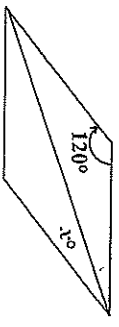
Bus	120
Walk	25
Train	40
Car	10
Other	5

These results are to be represented in a sector graph. What would be the correct angle size of the sector representing student who catch the train school?

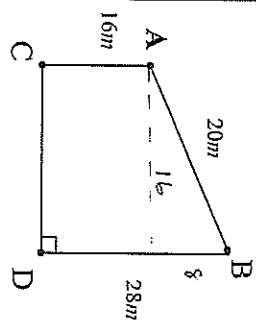
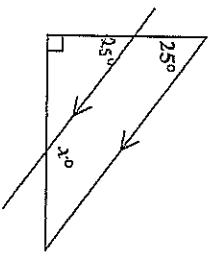
- (A) 20° (B) 40° (C) 72° (D) 144°

End of Multiple Choice

Section 2

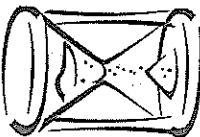
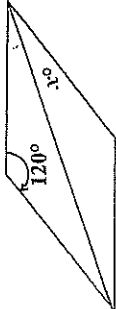
Question	Solution	
1 Write the ratio 50ml:1L in simplest form	1:20	1
2 Solve $\frac{60+x}{5} = 20$	$x = 40$	1
3 What is the range of the numbers below? 5, -12, -10, 0, -6	$5 - -12$ $= 17$	1
4 The sand in the timer flows at a rate of 3mg every 2 seconds. 	10 seconds	1
5 The diagram shows a rhombus with one angle of 120° marked. 	$x = 30^\circ$	1
5 What is the size of the angle marked x in the diagram?		

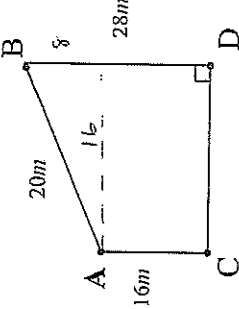
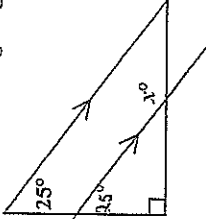
10

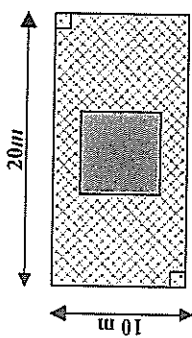
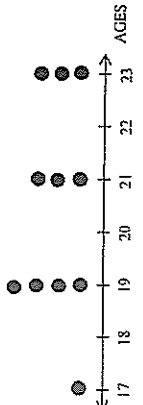
6 James and Peter share \$500 so that James has \$120 more than Peter. What amount will James receive? $\begin{array}{r} \text{James} \quad \text{Peter} \\ (x + 120) + x = 500 \\ 2x + 120 = 500 \\ 2x = 380 \\ x = 190 \end{array}$	$\begin{array}{r} \text{James} \quad \text{Peter} \\ 190 \\ 120 + \\ \hline 310 \end{array}$	1
7 A farmer builds a fence around a section of land to enclose his animals. 	$\begin{array}{r} 20 \\ 28 \\ 16 \\ 16 \\ \hline 80 \text{ m} \end{array}$	1
8 Find the value of x , giving reasons. 	$x = 115^\circ$	2
9 Solve for y : $\frac{y+5}{4} = 50$ $4 = 50(y+5)$ $4 = 50y + 250$ $-246 = 50y$ $y = -\frac{123}{25}$	$y = -\frac{123}{25} \quad \text{or} \quad -4\frac{23}{25}$ or $-4.92 (2dp)$	1

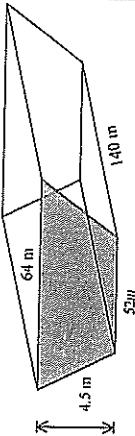
11

Section 2

Question	Solution	
1 Write the ratio 50ml:1L in simplest form	1:20	1
2 Solve $\frac{60+x}{5} = 20$	$x = 40$	1
3 What is the range of the numbers below? 5, -12, -10, 0, -6	$5 - (-12) = 17$	1
4 The sand in the timer flows at a rate of 3mg every 2 seconds.  At this rate, how long will it take the 15mg of sand to flow from the top to the bottom of the timer?	10 seconds	1
5 The diagram shows a rhombus with one angle of 120° marked  What is the size of the angle marked x in the diagram?	$x = 30^\circ$	1

6 James and Peter share \$500 so that James has \$120 more than Peter. What amount will James receive? <i>James Peter</i> $(x + 120) + x = 500$ $2x + 120 = 500$ $2x = 380$ $x = 190$	James receives $\begin{array}{r} 190 \\ 120 + \\ \hline 310 \end{array}$	1
7 A farmer builds a fence around a section of land to enclose his animals  What is the length (in metre) of the fence?	$\begin{array}{r} 20 \\ 28 \\ 16 \\ \hline 80 \text{ m} \end{array}$	1
8 Find the value of x, giving reasons 	$x = 115^\circ$	2
9 Solve for y: $\frac{4}{y+5} = 50$ $4 = 50(y+5)$ $4 = 50y + 250$ $-246 = 50y$ $y = -\frac{123}{25}$	$\begin{array}{l} y = -\frac{123}{25} \text{ or } -4\frac{23}{25} \\ \text{or} \\ -4.92 \text{ (approx)} \end{array}$	1

10	<p>The cost of hiring party equipment from Jacko's Party Hire is given by the formula $\\$C = 90 + 15t$ where 't' is the time in hours any equipment is hired for.</p> <p>What is the total cost of hiring party equipment from Friday 4:00pm until 2:00pm Saturday.</p>	$C = 90 + 15t$ $t = 22$ $C = 90 + 15 \times 22$ $= \$420$	1
11	<p>A paved section surrounding square garden has an area of $175m^2$.</p>  <p>What is the length (in metres) of one side of the garden?</p>	$20 \times 10 = 200$ $200 - 175 = 25$ $25 = 5^2$ $5 = 5$	1
12	Expand $-x(x - 5)$	$-x^2 + 5x$	1
13	<p>The dot plot shows the ages of a group of soccer players</p>  <p>What is the median age of the soccer players?</p>	21	1

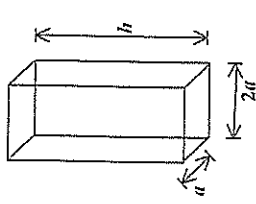
14	<p>The diagram shows a dam on a country property. The dam is in the shape of a prism. The cross-section of the prism is a trapezium as shown.</p> 	<p>a) Find the area of the shaded end.</p> <p>b) Find the capacity of the dam in kilolitres (kL), given $1 m^3 = 1 kL$</p> <p>c) When full of water, the dam will provide irrigation for 63 days. Calculate the average quantity of water used per day.</p>	<p>a)</p> $\frac{4.5}{2} (64 + 52) = 261 m^2$ <p>b)</p> $261 \times 140 = 36540$ $36540 kL$ <p>c)</p> $36540 kL \text{ for } 63 \text{ days}$ $580 kL/day$	3
15	Simplify $-\frac{7w^3}{w^0}$		$-7w^3$	1
16	<p>If it takes 176 palings to complete a 22 metre fence:</p> <p>a) How many palings will be needed for a 30m fence?</p> <p>8 palings per metre</p> <p>b) How long a fence could be erected with 124 palings?</p>	<p>a)</p> $8 \times 30 = 240 \text{ palings}$ <p>b)</p> $124 \div 8 = 15.5 \text{ metres}$		2

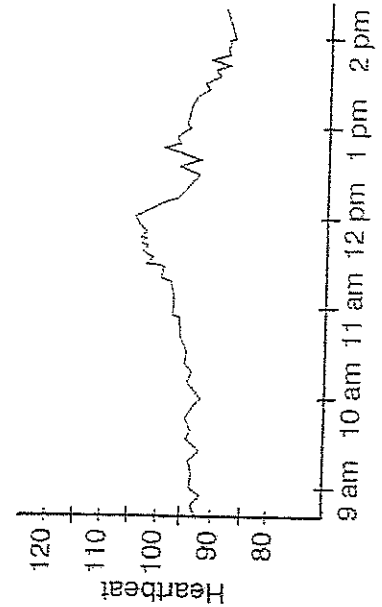
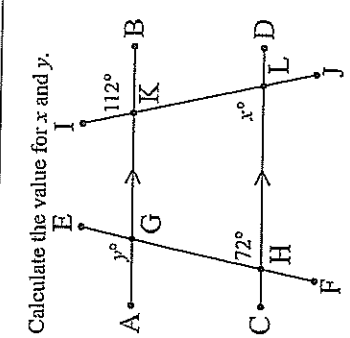
17	The netball team had scored a mean of 18 goals per game after nine games. After the tenth game their mean was 18.7. How many goals did they score in their tenth game?	$18 \times 9 = 162$ $\frac{162 + x}{10} = 18.7$ $162 + x = 187$ $x = 25$	1
18	The sum of 3 consecutive integers is 165. Find the first number.	$x + (x+1) + (x+2) = 165$ $3x + 3 = 165$ $3x = 162$ $x = 54$	1
19	What is the total surface area, in square units, of this rectangular prism?	$a \times 2a \times 2 = 4a^2$ $2a \times b \times 2 = 4ab$ $a \times h \times 2 = 2ah$ $\text{Surface Area} = 4a^2 + 6ab$	1
20	Simplify $(4pq^3)^2$	$16p^2q^6$	1

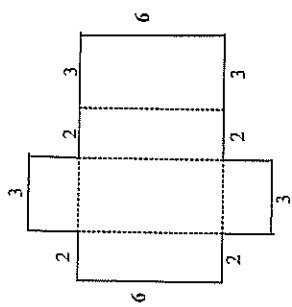
14

21	The graph records a baby's heartbeat.		4
22	Calculate the value for x and y.	$x = 68^\circ$ $y = 108^\circ$	2
23	Solve $3(a+2) - 2(a+1) = 6$ $3a + 6 - 2a - 2 = 6$ $a + 4 = 6$	$a = 2$	1

15

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21	The graph records a baby's heartbeat.		4
22	Calculate the value for x and y .	 $x = 68^\circ$ $y = 108^\circ$	2
23	Solve $3(a+2) - 2(a+1) = 6$ $3a + 6 - 2a - 2 = 6$ $a + 4 = 6$	$a = 2$	1

24	<p>The shape shown is folded along the dotted line to form a box in the shape of a rectangular prism. All lengths are in centimetres.</p>  <p>What is the volume of the box in cubic centimetres?</p>	$V = 3 \times 2 \times 6$ $= 36 \text{ cm}^3$	1												
26	<p>Factorise fully $15a^2b + 10ab^2$</p>	$5ab(3a + 2b)$	1												
27	<p>Put a number in each box so that the data has the mode of 321, median of 319 and has a range of 41</p> <table border="1" data-bbox="1062 1792 1355 2087"><thead><tr><th>Stem</th><th>Leaf</th></tr></thead><tbody><tr><td>29</td><td>5 8</td></tr><tr><td>30</td><td>9</td></tr><tr><td>31</td><td>6 6 8</td></tr><tr><td>32</td><td>0 1 1</td></tr><tr><td>33</td><td>3 3</td></tr></tbody></table> <p>$\frac{2 + 320}{2} = 319$</p>	Stem	Leaf	29	5 8	30	9	31	6 6 8	32	0 1 1	33	3 3	$\square = 8$ $\bigcirc = 1$ $\Delta = 6$	1
Stem	Leaf														
29	5 8														
30	9														
31	6 6 8														
32	0 1 1														
33	3 3														

End of Examination

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SYDNEY TECHNICAL HIGH SCHOOL

MULTIPLE CHOICE ANSWER SHEET

Name :
Teacher:

SOLUTIONS

Completely fill the response oval representing the most correct answer.

Do not remove this sheet from the answer booklet.

1. A ☐ B ☒ C ☐ D ☐
2. A ☐ B ☒ C ☐ D ☐
3. A ☐ B ☐ C ☒ D ☐
4. A ☐ B ☐ C ☐ D ☒
5. A ☐ B ☐ C ☐ D ☒
6. A ☐ B ☐ C ☒ D ☐
7. A ☐ B ☒ C ☐ D ☐
8. A ☒ B ☐ C ☐ D ☐
9. A ☐ B ☐ C ☐ D ☒
10. A ☐ B ☒ C ☐ D ☐
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12. A ☐ B ☐ C ☒ D ☐
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16. A ☐ B ☐ C ☐ D ☒
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18. A ☐ B ☐ C ☒ D ☐
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20. A ☒ B ☐ C ☐ D ☐
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28. A ☐ B ☐ C ☒ D ☐
29. A ☐ B ☐ C ☒ D ☐
30. A ☐ B ☐ C ☒ D ☐

