SYDNEY TECHNICAL HIGH SCHOOL

MATHEMATICS DEPARTMENT

YEAR 7 – COMMON TEST TERM 3 – 2014

Time allowed: 70 minutes

Name: _____

NON - CALCULATOR

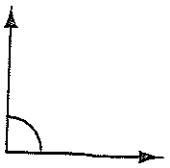
Teacher: _____

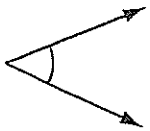
SECTION 1 * Multiple Choice - 40 marks

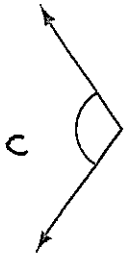
* Cross (X) the **LETTER** for the correct answer on your **ANSWER** sheet.

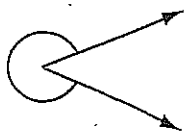
* Any working may be done next to the question.

1. Which shows a reflex angle?

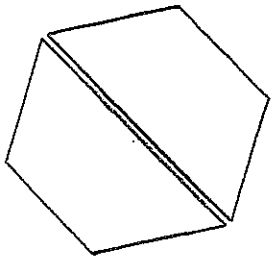
A 

B 

C 

D 

2. A regular hexagon is cut in half like this.

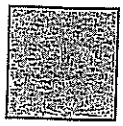
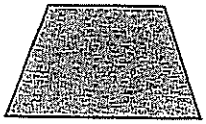
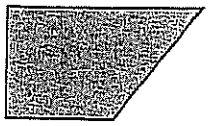
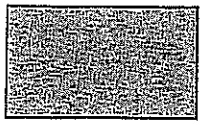


The shape of each half is a

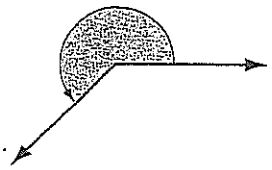
A rectangle. B pentagon. C hexagon. D trapezium.

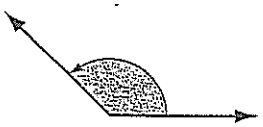
3. Only one of these shapes has two acute angles and two obtuse angles.

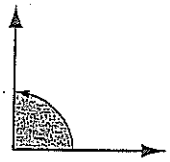
Which shape is it?

A  B  C  D 

4. Which angle is closest in size to 220°?

A 

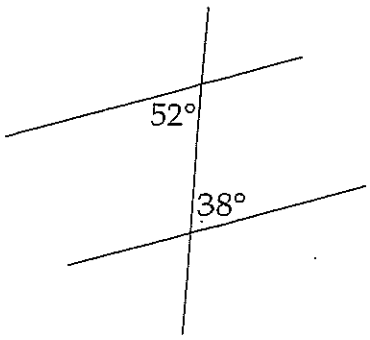
C 

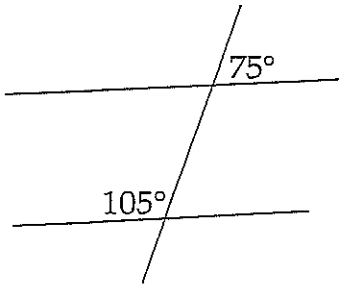
B 

D 

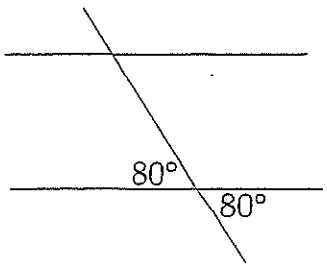
5. The following diagrams show pairs of lines being cut by a transversal.

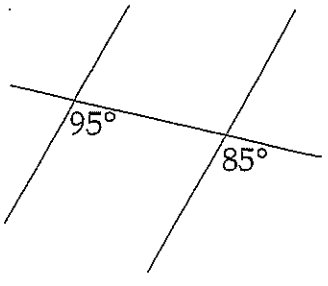
Which diagram shows a pair of lines that MUST be parallel?

A 

C 

ALL DIAGRAMS
NOT TO SCALE

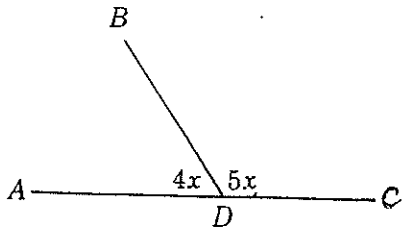
B 

D 

6. Which of these numbers is a prime number?

A. 2 B. 9 C. 39 D. 51

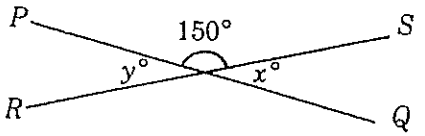
7. In the diagram ADC is a straight line. The size of $\angle BDC$, in degrees, is



(A) 20 (B) 50 (C) 80

(D) 100

8. If, in the figure, PQ and RS are intersecting straight lines, then $x + y$ equals



(A) 15 (B) 30 (C) 60 (D) 180

9. John is three years younger than Mary.

Which statement is correct?

A *Mary's age + John's age = 3*
B *Mary's age = John's age + 3*
C *John's age – Mary's age = 3*
D *John's age = Mary's age + 3*

10. Two divided by eight is equivalent to which of the following?

A $2 \div \frac{1}{8}$ B $2 \times \frac{1}{8}$ C $8 \div 2$ D 2×8

11. The area of Australia is 7 686 850 square kilometres.

What is this area rounded to the nearest thousand square kilometres?

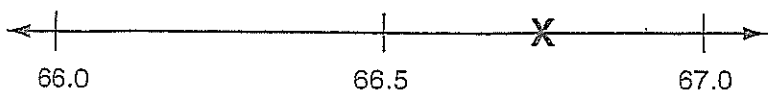
A 7 000 000 B 7 600 000 C 7 686 000 D 7 687 000

12. Jade buys a 500 gram bag of beads at a market.
Each bead has a mass of 0.48 grams.

Which of these is the best estimate for the number of beads in the 500 gram bag?

A 100 B 250 C 1000 D 2500

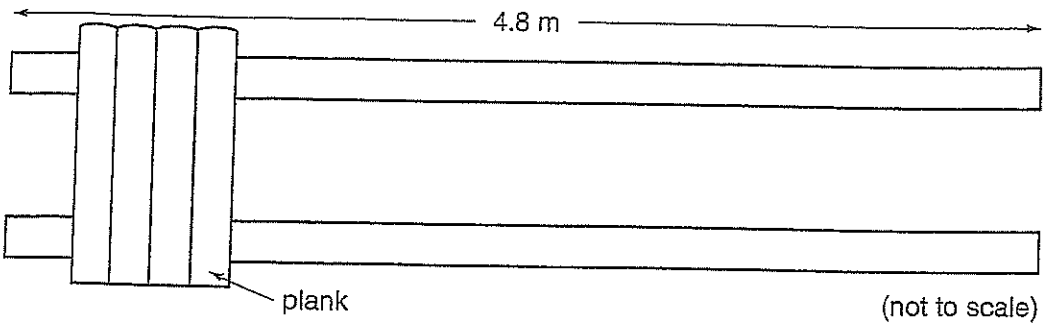
13.



Which number is at X on this number line?

A 65.65 B 66.50 C 66.55 D 66.75

14. Sam is building a wooden fence that is 4.8 metres long.
He is using planks that are all 0.12 metres wide.
There are no gaps between the planks.



How should Sam calculate how many planks he will need altogether?

A $4.8 \div 0.12$
B $0.12 \div 4.8$
C 4.8×0.12
D $4.8 - 0.12$

15. $45 \times \blacklozenge = 18$

What is the value of $\blacklozenge$?

A $\frac{2}{5}$ B $\frac{3}{5}$ C $\frac{5}{2}$ D $\frac{5}{3}$

16. Alex bought 3 pieces of fish and a \$2 bag of chips.
The cost was \$11.90.

What would 2 pieces of fish and a \$1 bag of chips cost?

A \$9.90 B \$8.90 C \$8.60 D \$7.60

17. This table shows the percentage of \$1 million prize money awarded as first, second and third prizes.

	Percentage of \$1 million
First prize	50%
Second prize	30%
Third prize	20%

2000 people equally shared third prize.

How much did **each** third-prize winner get?

A \$100
B \$200
C \$500
D \$200,000

18.

The value of y is given by the rule $y = 4 - x^2$.

What is the value of y when $x = 1.5$?

A 1 B 1.75 C 2.5 D 6.25

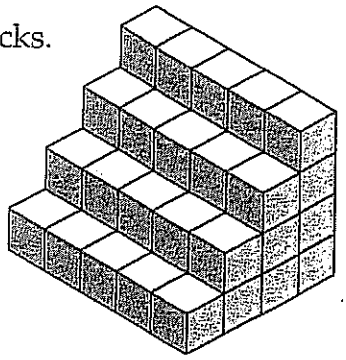
19. The school librarian made this table of the number of books borrowed on one day.

Number of books borrowed per student	1	2	3	4	5
Number of students	20	16	8	6	3

What was the total number of books borrowed that day?

A. 115 B. 53 C. 15 D. 5

20. Clive made this staircase by stacking blocks. There are no gaps between blocks.



How many blocks in the staircase are **not** shown at all?

A 26 B 24 C 15 D 10

21. In February 2010, the population of the world was approximately 6 800 000 000 people.

Another way of writing this number is

A 6.8×10^8 B 6.8×10^9 C 68×10^9 D 68×10^{10}

22. Three-fifths of a number is 48. What is the number?

A 54 B 60 C 64 D 80

23. Which of the following is closest to 100?

A $98 + 3.011$ B $97 + 4.011$ C $101 - 1.01$ D $102 - 2.011$

24. Which of these fractions has the greatest value?

A $\frac{3}{4}$ B $\frac{19}{24}$ C $\frac{5}{8}$ D $\frac{13}{16}$

25. Which of these percentages is closest in value to $\frac{7}{9}$?

A 76% B 77% C 78% D 79%

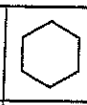
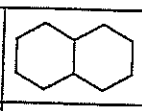
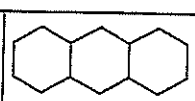
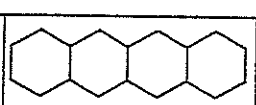
26. The table shows the charges for hiring this boat.

h (number of hours hired)	1	2	3	4	5
c (charge $)	25	45	65	85	105

Which rule shows the relationship between c and h?

A $c = 20 + 5 \times h$ B $c = 5 + 20 \times h$ C $c = 25 + 20 \times h$ D $c = 20 + 25 \times h$

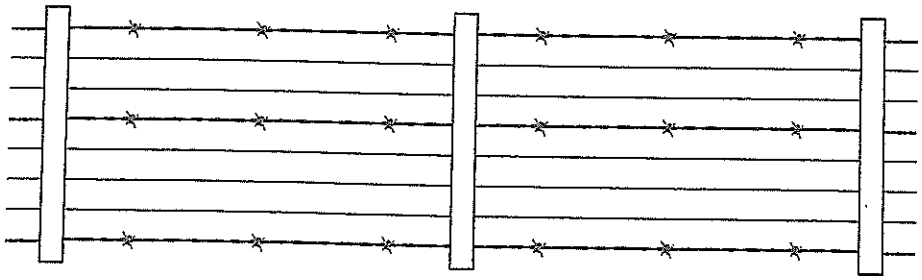
27. This hexagon pattern is made with sticks.

Hexagons					
Number of hexagons	1	2	3	4	10
Number of sticks	6	11	16	21	?

How many sticks are needed to make 10 of these hexagons?

A 51 B 53 C 55 D 60

28. A section of an 8-strand wire fence is shown.
The fence has 3 barbed wire strands and 5 plain wire strands.



Barbed wire costs $\$b$ per metre. Plain wire costs $\$p$ per metre.

Which of these expressions gives the total cost of the wire needed for a fence of length L metres?

A $8 \times b \times p \times L$ C $15 \times b \times p \times L$

B $8 \times (b + p) \times L$ D $(3 \times b + 5 \times p) \times L$

29. Zoe bought a bike on sale at 15% off the original price.
The original price was $420.

How much did Zoe pay for the bike?

A $63 B $357 C $378 D $405

30. Correctly evaluate $5 \times \frac{2}{3} + 2 \div \frac{3}{4}$

A 2 B $7\frac{1}{9}$ C 6 D $3\frac{5}{9}$

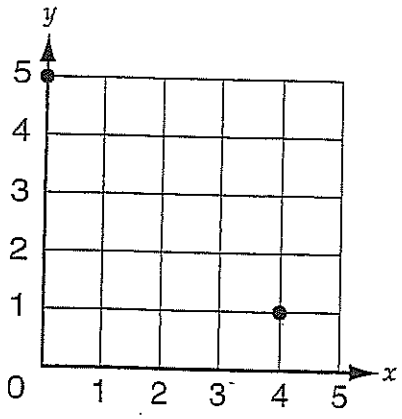
31. The table shows the 6 am temperature in Thredbo over 5 days.

Day	1	2	3	4	5
Temperature (°C)	–8.4	–7.6	–7.6	–8.5	–11

What is the difference between the highest and lowest of these temperatures?

A 2.6 B 3.4 C 4.6 D 18.6

32. Max is drawing a square on this grid.
He has drawn two corner points as shown.



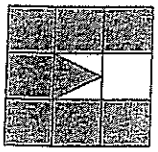
Max makes (4, 5) the third corner.

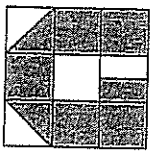
Where will the fourth corner be?

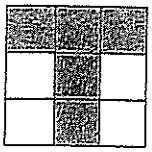
A (0, 1) B (1, 0) C (0, 5) D (1, 1)

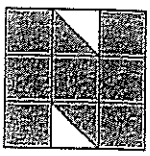
33. Tam cuts letters from squares of metal.

Which of these letters uses exactly $\frac{5}{6}$ of the metal square?

A 

B 

C 

D 

34. ■ and ▲ stand for numbers.
■ and ▲ are related by a rule.

■	▲
2	19
3	29
4	43
5	61

What is the rule?

A ▲ = 10 × ■ − 1
B ▲ = 14 × ■ − 13
C ▲ = 2 × ■ × ■ + 11
D ▲ = 4 × ■ × ■ + 3

35. Which set of fractions is ordered from smallest to largest?

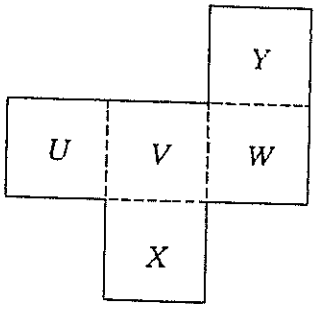
A $\frac{1}{2}, \frac{2}{3}, \frac{5}{8}, \frac{7}{12}, \frac{13}{24}$

B $\frac{1}{2}, \frac{13}{24}, \frac{7}{12}, \frac{5}{8}, \frac{2}{3}$

C $\frac{1}{2}, \frac{5}{8}, \frac{2}{3}, \frac{13}{24}, \frac{7}{12}$

D $\frac{2}{3}, \frac{5}{8}, \frac{7}{12}, \frac{1}{2}, \frac{13}{24}$

36. A piece of paper is cut out and labelled as shown in the diagram. It is folded along the dotted lines to make an open box. If the box is placed on a table so that the top of the box is open, then the label on the bottom of the box is

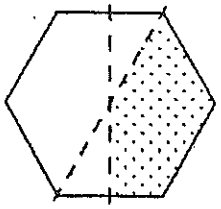


(A) U (B) V (C) W (D) X

37.

Each of the dashed lines drawn on this regular hexagon is an axis of symmetry.

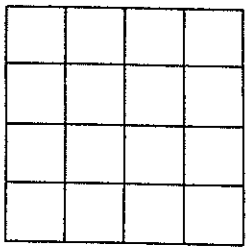
The fraction of the hexagon which is shaded is



(A) $\frac{5}{12}$ (B) $\frac{7}{24}$ (C) $\frac{11}{24}$ (D) $\frac{1}{3}$

38.

A square 4 cm × 4 cm is divided into 16 squares of side 1 cm as shown. The total number of squares (of any size) in the diagram is

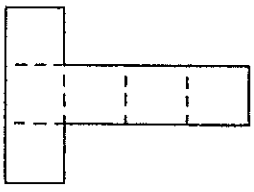


(A) 30 (B) 17 (C) 25 (D) 29

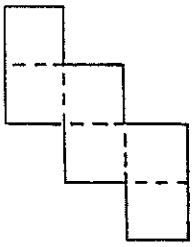
39.

Which one of the following figures can **not** be folded along the dotted lines shown to form a cube?

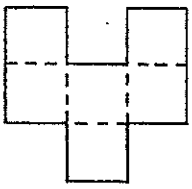
(A)



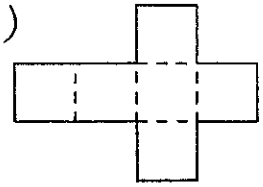
(B)



(C)



(D)



40.

What is the sum of all the integers from 1 to 1000?

A. 499,000 B. 499,500 C. 500,000 D. 500,500

SECTION 2 * Written response – 20 marks

* Write your simplified answer on the **ANSWER** sheet.

* You may do working next to the question.

1. $\frac{0.3^2}{0.1} = ?$

2. How many minutes are there in 45% of an hour?

3. $0.012 - 0.01 = ?$

4. 15% of an amount is 27 kg. What is the whole amount?

5. Find the value inside # to make $-6 + 4 - 3 - \# - 10 = 0$ true.

6. What number will make this statement true?

   4.52 + 3.68 = ☐ **+ 3.70**

7. Carlos has 3 times as many orange trees as lemon trees.
   Altogether he has 76 trees.

   How many **orange** trees does he have?

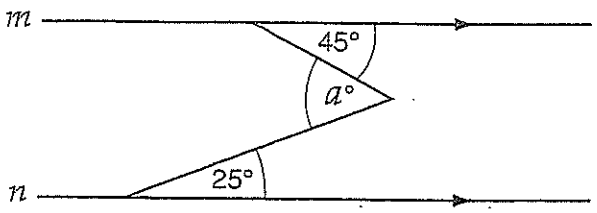
8. A rule to calculate the amount of medicine (mL) a child needs is:

Child amount = (*Adult amount* × *Age of child*) ÷ (*Age of child* + 12)

Use this rule to complete the table.

Adult amount (mL)	Age of child (years)	Child amount (mL)
10	8	?

9. In the figure below, the lines m and n are parallel.



(not to scale)

What is the value of a?

10. $(8 \times 10^5) \div (2 \times 10^3) =$?

11. Sean wrote a number on a piece of paper.
If he multiplied his number by 5 and then divided by 2,
the answer would be 30.

What was Sean's number?

12. Find the value of $10 \times a - (a + k)^2$ when $a = -5$ *and* $k = 3$

13. Tina and Jill play a game where points are scored as follows:

WIN	= +7
LOSS	= –3

Tina wins 5 games and loses 3 games, and Jill wins 3 games and loses 5 games.

What is the difference in their final scores?

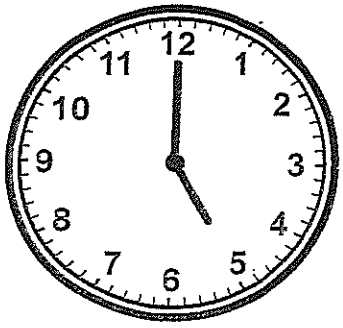
14. What is 30% of a quarter, added to, half of 0.1 ?

Leave your answer as a simplified fraction.

15. If $3.94 \times 22.6 = 89.044$, what is the answer to $890.44 \div 3940$?

16. $4.95 \div 4.5 =$?

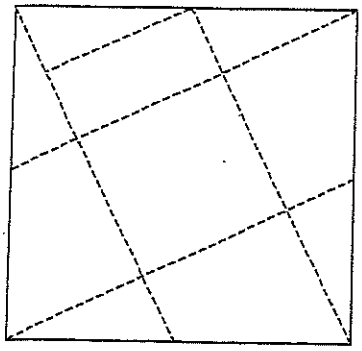
17. This clock shows 5 o'clock.



What is the size of the **smaller** angle between the minute and hour hands? ? °

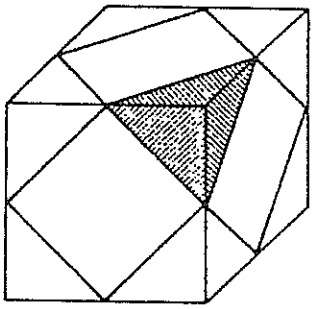
18. Name the solid that has exactly 5 isosceles triangles and one pentagon.

19. The entire top of a square table is tiled with triangular tiles like this one.



Altogether, how many triangular tiles are used?

20.



The mid-points of the edges of a wooden cube are joined as shown. The resulting triangular pyramids whose edges are these lines and the original edges of the cube are sawn off. The resulting solid has

(A) 14 faces and 24 edges

(B) 14 faces and 36 edges

(C) 16 faces and 24 edges

(D) 12 faces and 36 edges

YEAR 7 - TERM 3 COMMON TEST 2014 **ANSWER SHEET**

Time allowed: 70 minutes.

Name: _____

SECTION 1: CROSS (X) the correct answer.

Teacher: _____

1.	A	B	C	D	21.	A	B	C	D
2.	A	B	C	D	22.	A	B	C	D
3.	A	B	C	D	23.	A	B	C	D
4.	A	B	C	D	24.	A	B	C	D
5.	A	B	C	D	25.	A	B	C	D
6.	A	B	C	D	26.	A	B	C	D
7.	A	B	C	D	27.	A	B	C	D
8.	A	B	C	D	28.	A	B	C	D
9.	A	B	C	D	29.	A	B	C	D
10.	A	B	C	D	30.	A	B	C	D
11.	A	B	C	D	31.	A	B	C	D
12.	A	B	C	D	32.	A	B	C	D
13.	A	B	C	D	33.	A	B	C	D
14.	A	B	C	D	34.	A	B	C	D
15.	A	B	C	D	35.	A	B	C	D
16.	A	B	C	D	36.	A	B	C	D
17.	A	B	C	D	37.	A	B	C	D
18.	A	B	C	D	38.	A	B	C	D
19.	A	B	C	D	39.	A	B	C	D
20.	A	B	C	D	40.	A	B	C	D

(SECTION 2 ANSWERS - reverse side of this page)

SCORE _____/40

SECTION 2 – Write your answer in the appropriate space.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

SCORE _____/20

TOTAL SCORE : _____/40 + _____/20 = _____/60

ANSWERS

YEAR 7 - TERM 3 COMMON TEST 2014 — ANSWER SHEET

Time allowed: 70 minutes.

Name: _____

SECTION 1: CROSS (X) the correct answer.

Teacher: _____

1.	A	B	C	**X**
2.	A	B	C	**X**
3.	A	**X**	C	D
4.	**X**	B	C	D
5.	A	B	**X**	D
6.	**X**	B	C	D
7.	A	B	C	**X**
8.	A	B	**X**	D
9.	A	**X**	C	D
10.	A	**X**	C	D
11.	A	B	C	**X**
12.	A	B	**X**	D
13.	A	B	C	**X**
14.	**X**	B	C	D
15.	**X**	B	C	D
16.	A	B	C	**X**
17.	**X**	B	C	D
18.	A	**X**	C	D
19.	**X**	B	C	D
20.	A	**X**	C	D
21.	A	**X**	C	D
22.	A	B	C	**X**
23.	A	B	**X**	D
24.	A	B	C	**X**
25.	A	B	**X**	D
26.	A	**X**	C	D
27.	**X**	B	C	D
28.	A	B	C	**X**
29.	A	**X**	C	D
30.	A	B	**X**	D
31.	A	**X**	C	D
32.	**X**	B	C	D
33.	**X**	B	C	D
34.	A	B	**X**	D
35.	A	**X**	C	D
36.	A	**X**	C	D
37.	**X**	B	C	D
38.	**X**	B	C	D
39.	A	B	**X**	D
40.	A	B	C	**X**

(SECTION 2 ANSWERS - reverse side of this page)

SCORE _____/40

SECTION 2 – Write your answer in the appropriate space.

1. 0.9
2. 27 min.
3. 0.002
4. 180 kg
5. −15
6. 4.5
7. 57
8. 4
9. 70°
10. 400
11. 12
12. −54
13. 20
14. $\frac{1}{8}$ (must be a simp. fraction)
15. 0.226
16. 1.1
17. 150°
18. pentagonal pyramid
19. 20
20. A

SCORE _____/20

TOTAL SCORE : _____/40 + _____/20 = _____/60