SYDNEY TECHNICAL HIGH SCHOOL

MATHEMATICS DEPARTMENT

YEAR 7 – COMMON TEST TERM 3 – 2015

Time allowed: 70 minutes

Name: _____

NON - CALCULATOR

Teacher: _____

PART A

* Multiple Choice - 35 marks

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

* Any working may be done next to the question.

PART B

* Written response – 20 marks

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

* You may do working next to the question.

PART A

1. Which of these shows the **smallest** change in temperature?

A. from –10 °C to –5 °C
B. from –4 °C to 0 °C
C. from –3 °C to 3 °C
D. from 4 °C to 6 °C

2. Which expression is equal to $5^3 \times 25^2$?

A. $5 \times 3 \times 25 \times 2$
B. $5 \times 5 \times 5 \times 5 \times 5$
C. $5 \times 5 \times 5 \times 25 \times 5$
D. $5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5$

3. Which number has the **largest** value?

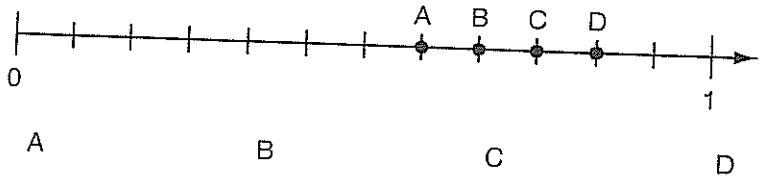
A. $\frac{1}{6}$ B. $\sqrt{0.04}$ C. 0.18 D. $(0.4)^2$

4. $45 \times \blacklozenge = 18$

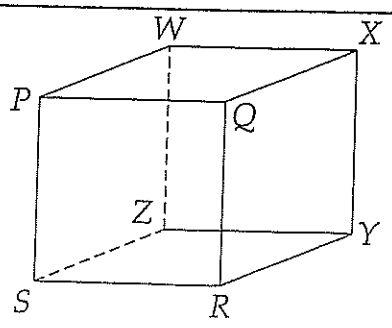
What is the value of $\blacklozenge$?

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

5. Which position is closest to $\frac{2}{3}$ on this number line?



A B C D

6. 

Which line is skew to PS?

(A) PX (B) XS (C) XY (D) QX

7. Which of these are always equal in length?

A. the opposite sides of a trapezium
B. the opposite sides of a parallelogram
C. the diagonals of a trapezium
D. the diagonals of a parallelogram

8. Which one of the following triangles is **impossible** to draw?

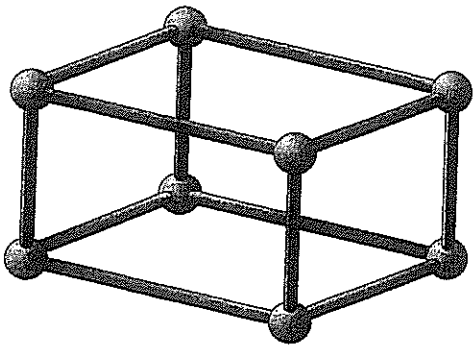
A. an isosceles triangle with one right angle
B. an equilateral triangle with one right angle
C. a scalene triangle with one obtuse angle
D. an isosceles triangle with three acute angles

9. When Eli moved to Australia, the population was 22 112 277 people.

How many people is that to the nearest million?

A. 20 000 000
B. 22 000 000
C. 22 100 000
D. 22 110 000

10. Ruth made this model using 8 foam balls for the vertices and 12 sticks for the edges.



How many foam balls and sticks would Ruth need to make a **square-based pyramid**?

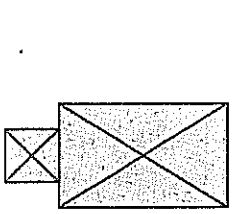
A. 5 foam balls and 8 sticks
B. 5 foam balls and 6 sticks
C. 4 foam balls and 6 sticks
D. 6 foam balls and 9 sticks

11. The petrol tank in Gina's car is empty.
She buys $72 worth of petrol at $1.50 per litre.
Her car uses 8 litres of petrol per 100 km travelled.

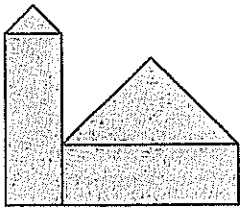
Which calculation gives the number of kilometres travelled before the tank is empty again?

A. $72 \div 1.50 \times 8 \div 100$
B. $72 \div 1.50 \div 8 \times 100$
C. $72 \times 1.50 \div 8 \div 100$
D. $72 \times 1.50 \times 8 \times 100$

12. The top view and front view of a building are shown.

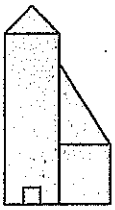


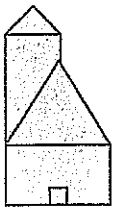
Top view

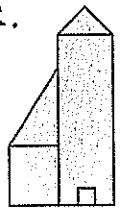


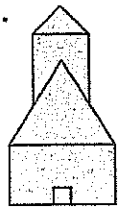
Front view

Which could be the side view of this building?

A. 

B. 

C. 

D. 

13. Bruce is cooking dinner.
The table shows the cooking times for his dinner.

	Cooking time
Chicken	1 hour 40 minutes
Potatoes	20 minutes
Peas	10 minutes

Bruce starts cooking the chicken at 5:10 pm.
He wants everything to finish cooking at the same time.

At what time should Bruce start cooking the peas?

A. 6:20 pm B. 6:30 pm C. 6:40 pm D. 6:50 pm

14. The table shows the times of 3 of the first 4 swimmers in a race.

1st place	25.38 seconds
2nd place	25.83 seconds
3rd place	?
4th place	26.29 seconds

The time of the swimmer in 3rd place could be

A. 25.78 seconds.
B. 25.91 seconds.
C. 26.31 seconds.
D. 26.92 seconds.

15.

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}

16

When it is 11 am in Perth, it is 3 pm in Auckland on the same day.
At 9 pm in Perth, Sophie phoned a friend in Auckland.

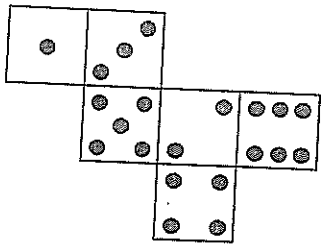
What was the time in Auckland when Sophie phoned?

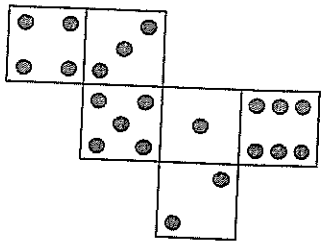
A. 1 am B. 5 am C. 1 pm D. 5 pm

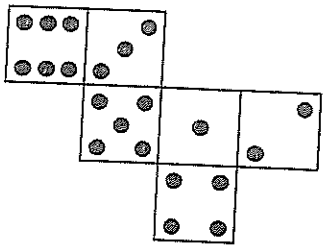
17

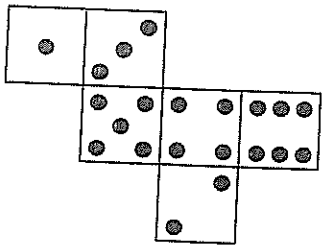
Opposite faces on a standard die always add up to 7.

Which is a correct net for a standard die?

A. 

B. 

C. 

D. 

18

This table is a training schedule for a walking group.

Week number	Week 1	Week 2	Week 3	Week 4
Daily distance	5 km	6 km	8 km	?

The daily distance increases from week to week. It follows the rule:

Double the previous week's daily distance and subtract 4 km.

What is the daily distance for Week 4?

A. 9 km B. 10 km C. 12 km D. 20 km

19

Jane buys a 1.25 L bottle of drink and a 375 mL can of drink.

How much drink does she buy?

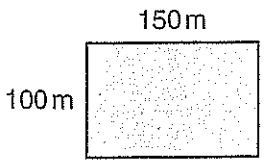
A. 376.25 mL B. 500 mL C. 1.525 L D. 1.625 L

20.

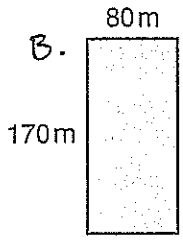
A farm has 4 paddocks.

Which paddock has the largest area?

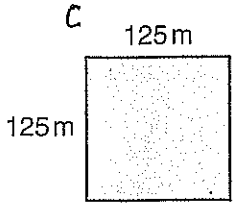
A.



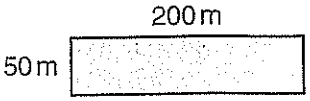
B.



C

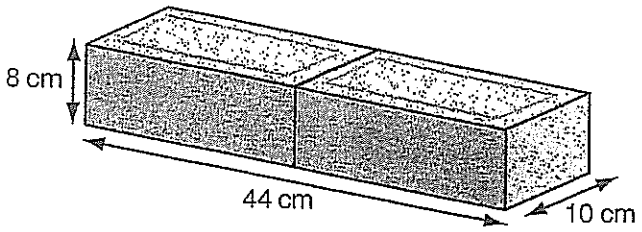


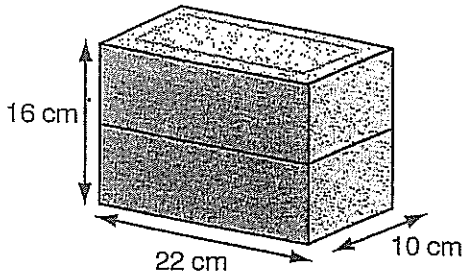
D.



21.

Two bricks can be placed together face-to-face to form three different rectangular prisms. Two of them are shown here.





What would be the measurements of the third prism?

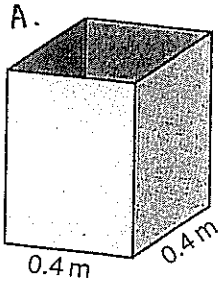
A. 11 cm by 16 cm by 10 cm
B. 22 cm by 20 cm by 8 cm
C. 32 cm by 22 cm by 10 cm
D. 44 cm by 16 cm by 5 cm

22.

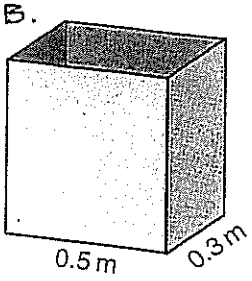
A factory makes metal boxes. The base and sides of the boxes are rectangular. The height of each box is 0.8 metres.

Which box has a volume of 0.16 cubic metres?

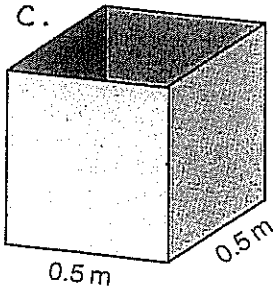
A.



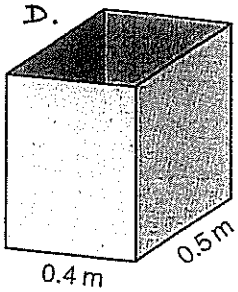
B.



C.



D.



23.

Nadia went on a bus trip in Queensland.
Her bus left at 8:45 am. It arrived at 2:35 pm on the same day.

How long did Nadia's bus trip take?

A. 5 hours 50 minutes
B. 6 hours 10 minutes
C. 6 hours 50 minutes
D. 7 hours 50 minutes

24.

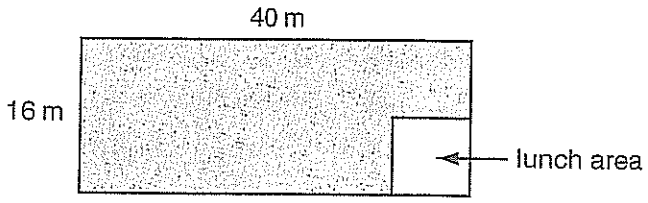
What number makes this number sentence correct?

$1.6 \times ? = 4.48$

A. 2.8 B. 2.88 C. 6.08 D. 7.168

25.

This diagram shows a rectangular school yard.
The shaded area is the playground.
The lunch area is a square of side length 8 m.



Which of these expressions gives the area of the playground?

A. $(40 \times 16) - (8 \times 8)$ B. $(32 \times 8) + (8 \times 8)$

C. $(40 + 16) - (8 + 8)$ D. $(40 \times 16) + (8 \times 8)$

26.

Sam buys 16 tickets to a concert.
The tickets cost $27 each.

Which of these could Sam use to calculate the total cost?

A. $(27 \times 10) + 6$
B. $(27 \times 10) \times 6$
C. $(20 \times 10) + (7 \times 6)$
D. $(27 \times 10) + (27 \times 6)$

27

A copier prints 1200 leaflets.
One-third of the leaflets are on yellow paper and the rest are on blue paper.
There are smudges on 5% of the blue leaflets.

How many blue leaflets have smudges?

A. 40 B. 60 C. 400 D. 800

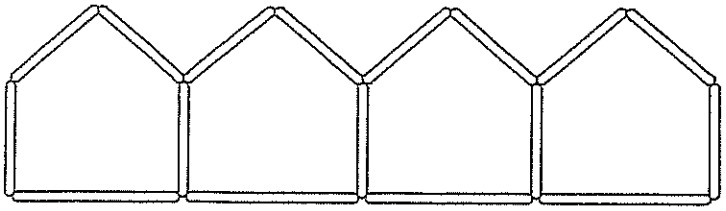
28

The diameter of Jupiter is approximately
3 times the diameter of Neptune,
12 times the diameter of Venus and
21 times the diameter of Mars.

About how many times larger is the diameter of Neptune than the diameter of Mars?

A. 7 B. 18 C. 24 D. 63

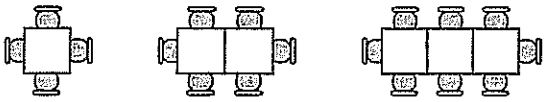
29. Sticks are used to make this pattern of pentagons.



In this pattern the rule for the number of sticks is

A 5 × number of pentagons.
B 4 × number of pentagons.
C 5 × number of pentagons – 1.
D 4 × number of pentagons + 1.

30. Miriam owns a restaurant.
She sets up rows of tables and chairs as shown.



4 6 8

Which of these rules can be used to work out how many chairs will be needed on any row of tables?

A *number of tables* × 4
B *number of tables* ÷ 2 – 2
C *number of tables* × 2 + 2
D *number of tables* × 2 – 2

31. Tim had $32 to spend while on holiday.
He spent exactly the same amount each day.
At the end of the holiday he had no money left.

Which of these could be the amount he spent each day?

A $6 B $5 C $4 D $3

32. 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

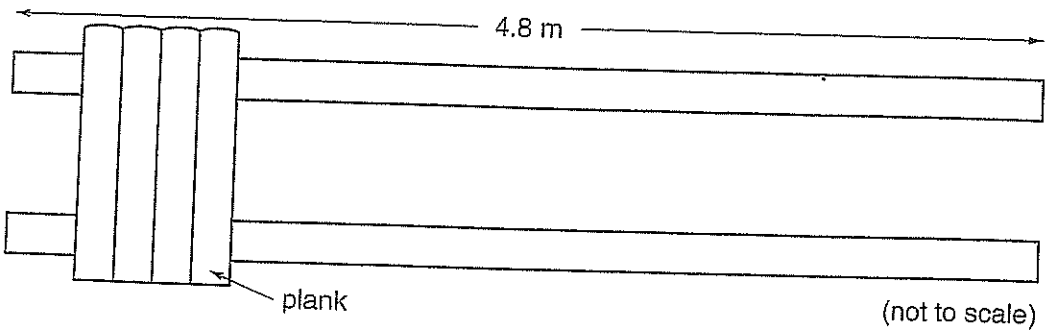
33

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

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

34

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.

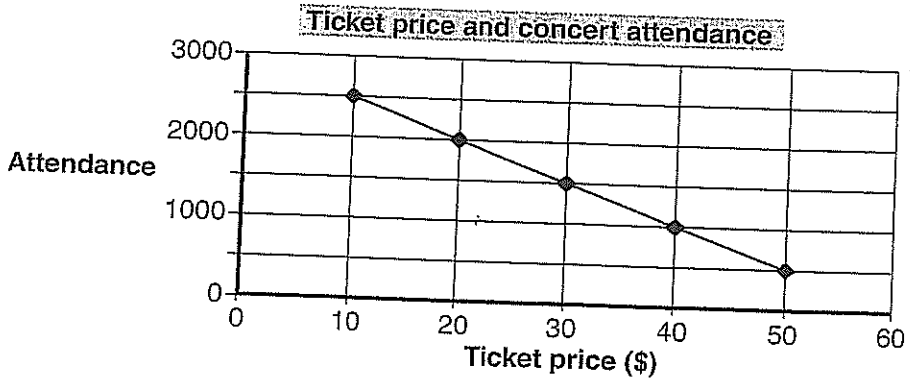


How should Sam calculate how many planks he will need altogether?

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

35.

Jack drew this graph to show how attendance at concerts is related to ticket price.



Which statement best describes the graph?

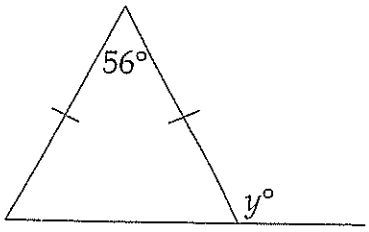
A. As the ticket price goes up, attendance goes down.
B. As the ticket price goes up, attendance goes up.
C. As the ticket price goes down, attendance goes down.
D. As the ticket price goes down, attendance stays the same.

PART B

1.

Write 2009 as a product of its prime factors.

2.



What are the values of y

3.

The table shows the distance a car travels before stopping, after the brakes are applied.

Speed (km/h)	40	50	60	70	80	90	100	110
Stopping Distance (m)	20·6	29·6	38·1	48·5	60·2	73·1	87·2	102·4

Jess is driving her car at a speed of 50 km/h. Ben is driving his car twice as fast.

Jess and Ben apply their brakes at the same time. How much further than Jess will Ben travel before his car stops?

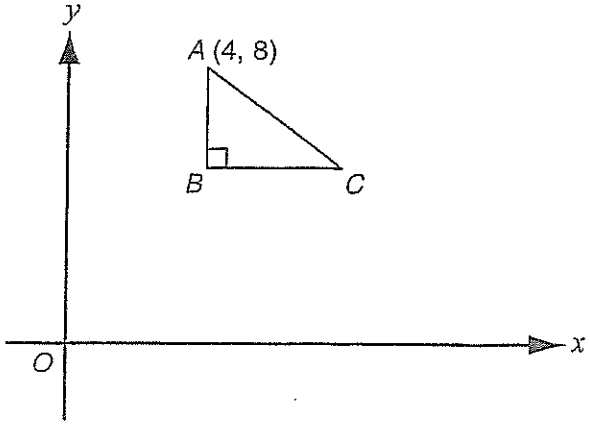
4.

When $m = 2$ and $n = -2$, what is the value of $m^2 + n^2$?

$m^2 + n^2 =$

5.

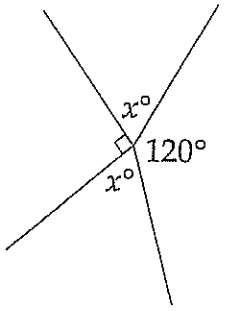
The coordinates of point A are (4, 8).



AB is parallel to the y axis.

If $AB = 3$, $BC = 4$ and $AC = 5$, what are the coordinates of point C?

6.



NOT TO SCALE

Find the value of x.

7.

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

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

8.

Three friends were making cupcakes for a party.
Josh made 10 more cakes than Alice.
Alice made 8 more cakes than Tom.
In total they made 62 cakes.

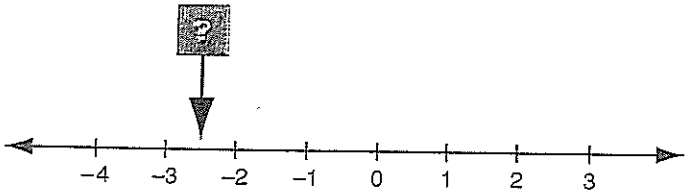
How many cakes did **Tom** make?

9.

Amanda sells T-shirts at a market for $15 each.
Her costs are $6 per T-shirt and $540 per month rent.

How many T-shirts must Amanda sell per month to equal her monthly costs?

10.



The arrow points to a position on the number line.

What number is at this position?

11.

A jockey rode a horse for 1200 metres.
The time for each 400 metres is shown in the table.

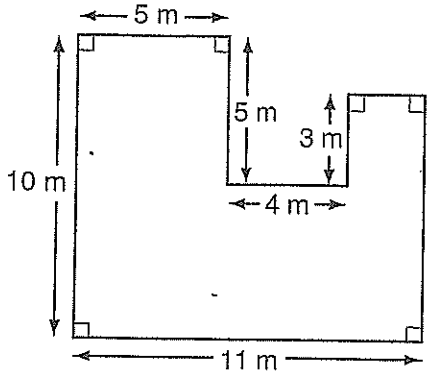
Distance	Time
First 400 metres	29 seconds
Next 400 metres	27 seconds
Last 400 metres	24 seconds

What was the average speed for the 1200 metre ride, in metres per second?

12.

The diagram shows some measurements of a courtyard.

What is the area of the courtyard in square metres?



13.

Elli was playing a video game.
In the game she had to collect objects that are worth points.
The pictures show how many points she scored in three games.

Game 1	Game 2	Game 3
		
170 points	150 points	120 points

In Game 4 she collected these three objects: 

How many points did she score in Game 4?

14.

When this kettle is full of water it has a mass of 2900 grams.

When the kettle is half full of water it has a mass of 2050 grams.
What is the mass of the kettle when it is empty?

15.

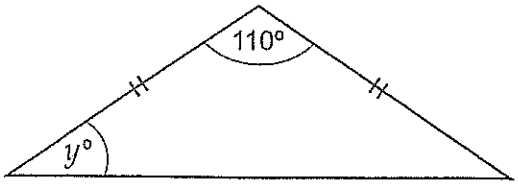
The table shows the height of a burning candle at different times.

Time (minutes)	0	5	10	15	20	25	30
Height (cm)	15	14.25	13.5	12.75	12	11.25	10.5

The candle burns until its height is 3 cm.

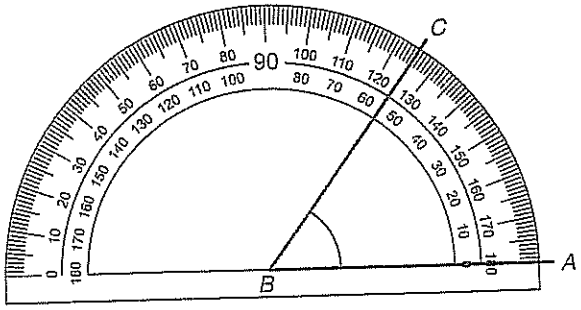
How many minutes does it take the candle to burn to a height of 3 cm?

16.



What is the value of y?

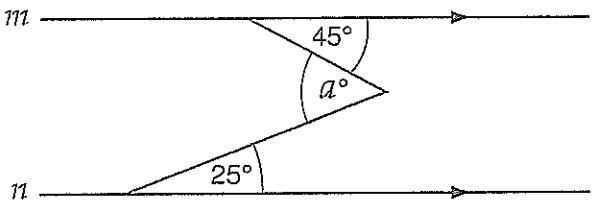
17



What is the size of angle ABC?

18

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

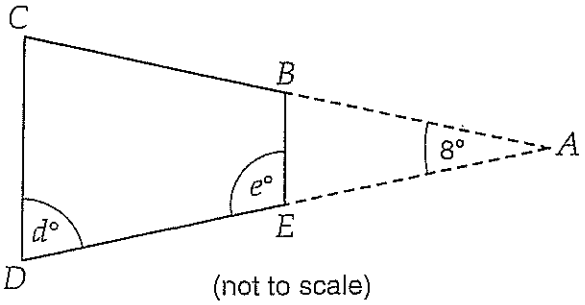


(not to scale)

What is the value of a?

19

In this drawing, ACD is an isosceles triangle and $BC = DE$.



(not to scale)

What are the sizes of the two marked angles, d and e?

File

YEAR 7 - TERM 3 COMMON TEST 2015 — ANSWER SHEET

Time allowed: 70 minutes.

Name: _____

SECTION 1: CROSS (X) the correct answer.

Teacher: _____

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
11.	A	B	C	D
12.	A	B	C	D
13.	A	B	C	D
14.	A	B	C	D
15.	A	B	C	D
16.	A	B	C	D
17.	A	B	C	D
18.	A	B	C	D
19.	A	B	C	D
20.	A	B	C	D
21.	A	B	C	D
22.	A	B	C	D
23.	A	B	C	D
24.	A	B	C	D
25.	A	B	C	D
26.	A	B	C	D
27.	A	B	C	D
28.	A	B	C	D
29.	A	B	C	D
30.	A	B	C	D
31.	A	B	C	D
32.	A	B	C	D
33.	A	B	C	D
34.	A	B	C	D
35.	A	B	C	D

(SECTION 2 ANSWERS - reverse side of this page)

SCORE _____/ 35

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. $d =$ _____

$e =$ _____

SCORE _____/20

TOTAL SCORE : _____/35 + _____/20 = _____/ 55

YEAR 7 - TERM 3 COMMON TEST 2015 **ANSWER SHEET**

Time allowed: 70 minutes.

Name: SOLUTIONS

SECTION 1: CROSS (X) the correct answer.

Teacher: _____

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
11.	A	~~B~~	C	D
12.	A	B	C	~~D~~
13.	A	B	~~C~~	D
14.	A	~~B~~	C	D
15.	A	~~B~~	C	D
16.	~~A~~	B	C	D
17.	A	B	~~C~~	D
18.	A	B	~~C~~	D
19.	A	B	C	~~D~~
20.	A	B	~~C~~	D
21.	A	~~B~~	C	D
22.	A	B	C	~~D~~
23.	~~A~~	B	C	D
24.	~~A~~	B	C	D
25.	~~A~~	B	C	D
26.	A	B	C	~~D~~
27.	~~A~~	B	C	D
28.	~~A~~	B	C	D
29.	A	B	C	~~D~~
30.	A	B	~~C~~	D
31.	A	B	~~C~~	D
32.	A	~~B~~	C	D
33.	A	B	~~C~~	D
34.	~~A~~	B	C	D
35.	~~A~~	B	C	D

(SECTION 2 ANSWERS - reverse side of this page)

SCORE _____ / 35

SECTION 2 – Write your answer in the appropriate space.

1. $7^2 \times 41$

2. $y = 118^\circ$

3. 57.6 m

4. 8

5. (8, 5)

6. $x = 75^\circ$

7. 1.75

8. 12

9. 60

10. $-2\frac{1}{2}$

11. 15 m/s

12. $86 m^2$

13. 145

14. 1200 g

15. 80 min

16. 35°

17. 55°

18. 70°

19. $d = 86^\circ$

$e = 94^\circ$

SCORE _____/20

TOTAL SCORE : _____/35 + _____/20 = _____/ 55