

**MATHEMATICS ENTRANCE  
EXAMINATION 2016  
PRACTICE PAPER A**

**DURATION: 1 HOUR**



- 1 a) Calculate the sum of **12.51** and **9.7**

.....  
.....  
.....(1)

- b) Calculate the difference between **1265** and **789**

.....  
.....  
.....(1)

- c) Multiply **258** by **57**

.....  
.....  
.....  
.....  
.....  
.....(3)

- d) Divide **342** by **9**

.....  
.....  
.....(2)

- 2 a) Calculate the value of  **$25 + 5 \times 3$**

.....  
.....(1)

- b) Use the fact that  **$24 \times 12 = 288$**  to work out;

- i)  **$2.4 \times 12$**  .....(1)  
ii)  **$120 \times 24$**  .....(1)  
iii)  **$288 \div 12$**  .....(1)  
iv)  **$144 \div 24$**  .....(1)

- 3 Look at the following list of numbers.

2    3    5    8    9    11    12    16    19    21

Write down the numbers which are;

- a) **Prime** .....(1)  
 b) **Square** .....(1)  
 c) **What percentage of the numbers are multiples of 3?**  
 .....(1)

- 4 Look at the following list of numbers.

$\frac{12}{30}$     0.3    0.4     $\frac{2}{10}$      $\frac{12}{15}$

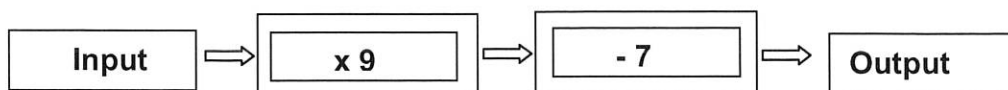
Write down the two numbers which are equal to each other.

.....(1)

- 5 The ferry Journey from Jersey to St Malo takes 1h 15 minutes to complete. The total distance is 40 miles. What distance would someone taking this ferry have covered in;

- a) **One quarter of an hour?**  
 .....miles (1)  
 b) **45 minutes?**  
 ..... miles (1)

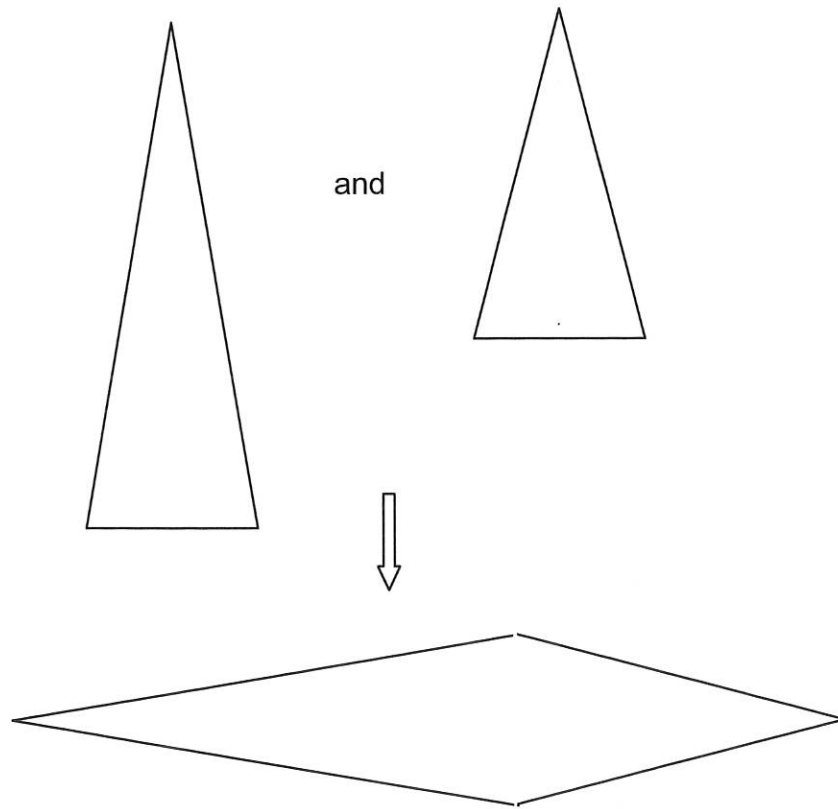
- 6 Look at the number machine below.



- b) What would the output be for an input of 2?  
 .....(1)  
 a) What input would lead to an output of 83?

.....(1)

- 7 These two isosceles triangles can be used to make a quadrilateral.



- a) Name the quadrilateral

.....(1)

- b) How many lines of symmetry does the quadrilateral have?

.....(1)

- c) The area of the smaller triangle is  $6\text{cm}^2$ . The larger triangle is 1.5  
the area of the smaller triangle.

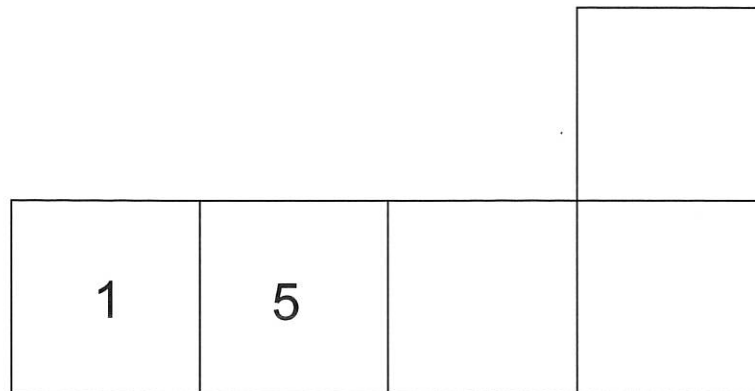
Calculate the area of the quadrilateral.

.....

.....

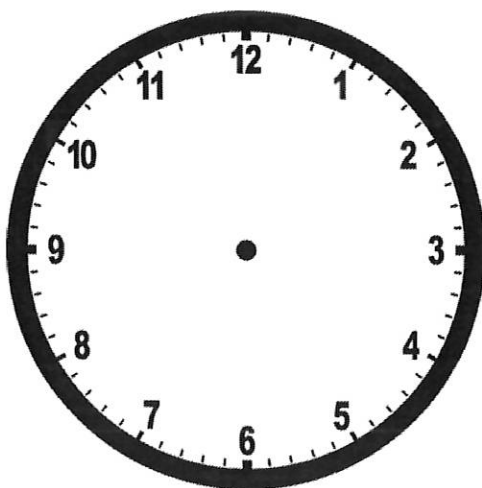
..... $\text{cm}^2$ ..(2)

- 8 Here is part of the net of a cube. When complete the cube forms a die where the opposite faces add up to 7. Complete the net and the numbers.



(2)

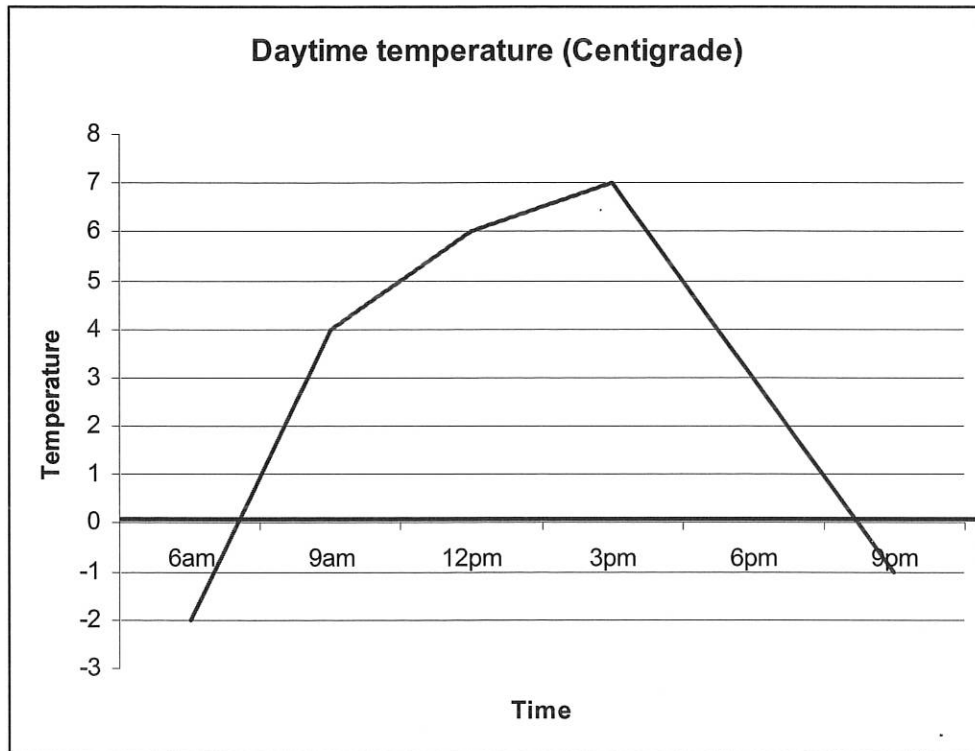
- 9 Draw the hour and minute hands on this clock to indicate a time of 15:00 hours.



What is the name of the angle formed by the hour and minute hands?

.....(2)

- 10 The following graph shows the how the temperature changed in during a winter day. Temperature readings were taken every 3 hours.



- a) At what time did the maximum temperature occur?  
.....(1)
- b) What was the temperature rise between **9am** and **3pm**?  
.....°C..(1)
- c) What was the difference between the maximum and minimum temperatures?  
.....(1)

11 Here is a set of numbers.

**2, 4, 7, 5, 5, 7, 14, 4, 6**

a) Work out the mean of these numbers

.....  
.....(3)

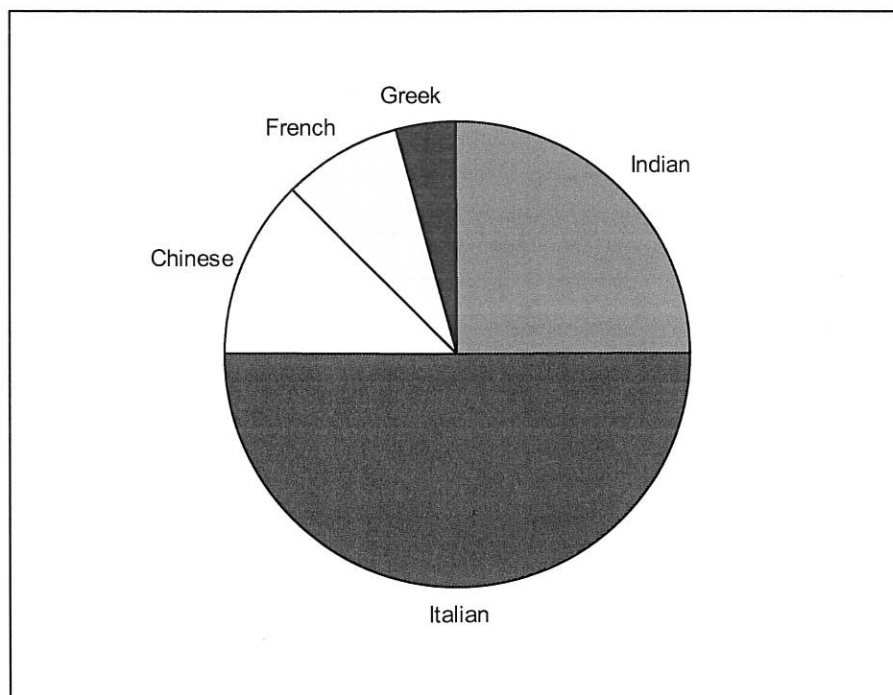
b) One number is removed from the set.

The new mean is now **5**.

Which number was removed?

.....  
.....(2)

12 The following pie chart shows the favourite international foods of a class of children.



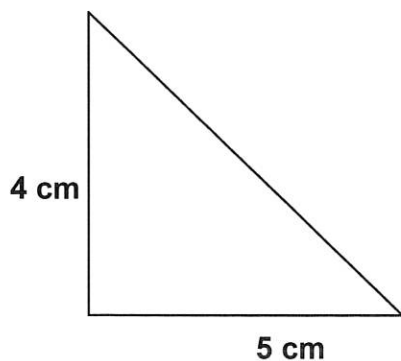
a) **6** children said they preferred Indian food. How many children were surveyed in total?

.....(1)

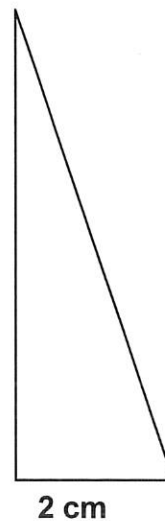
b) **2** Children responded that French was their favourite international food. Calculate the size of the angle be for the Indian food sector.

.....  
.....(2)

- 13 These two triangles have the same area.



(The triangles are **not** drawn to scale)



Work out the height of the second triangle.

.....  
.....  
.....cm<sup>2</sup>..(2)

- 14 Calculate  $-7 - 4$

..... (1)

- 15 There are **25** students in a class. A rugby sevens team requires **7** students.

- a) How many complete teams can be formed from the class?  
(Each student cannot be chosen more than once)

..... (1)

- b) How many students would be left out of a team?

..... (1)



- 16 In the recent rugby world cup, the pool stage involved 4 pools each made up of 5 teams. Each team plays the other teams in the group once.

| Pool A    |
|-----------|
| Argentina |
| England   |
| Georgia   |
| Romania   |
| Scotland  |

- a) How many games are played by Argentina?

.....(1)

- b) How many games are played altogether by teams in the pool?

.....(1)

In the knockout stages of the tournament the top 2 teams from each pool are selected to play in one of four quarter final games. The winners of the quarter final then play a semi final, with the winners going on to play a final and the losers a third place playoff.

- c) How many games are played in the knockout stages altogether?

.....(1)

- d) How many games are played in the entire tournament?

.....(1)

- e) If the tournament were to be changed to have only four pools of four teams each in the pool stage. How many games would be played in the tournament?

.....  
 .....(2)

## Solutions

1 a) 22.21 b) 476 c)  $258 \times 7 = 1806$ ,  $258 \times 50 = 12900$ , 14706  
d) 38

2 a) 40 b) i) 28.8, ii) 2880, iii) 24, iv) 6

3 a) 2,3,5,11,19 b) 9,16 c) 40%

4 a)  $12/30$  and 0.4

5 a) 8miles b) 24miles

6 a) 11 b) 10

7 a) Kite b) 1 c)  $6 + 9 = 15 \text{ cm}^2$

8 3 or 4

|   |   |   |   |
|---|---|---|---|
| 1 | 5 | 6 | 2 |
|---|---|---|---|

3 or 4

9 Draws 3 O'Clock, Right Angle

10 a) 3pm b) 3 degrees C c) 9 degrees C

11 a)  $54/9 = 6$  b)  $8 \times 5 = 40$  so 14 was removed

12 a)  $6 \times 4 = 24$  b)  $90 / 3 = 30^\circ$

13 area = 10 height = 10cm

14 - 11

15 a) 3 b) 4

16 a) 4 b) 10 c) 8 d) 48 e)  $4 \times 6 + 8 = 32$

**MATHEMATICS ENTRANCE  
EXAMINATION 2016  
PRACTICE PAPER B**

**DURATION: 1 HOUR**



- 1 a) Calculate the difference between **1202** and **808**  
.....  
.....  
.....(1)
- b) Calculate the sum of **10.9** and **3.27**  
.....  
.....  
.....(1)
- c) Multiply **157** by **49**  
.....  
.....  
.....  
.....  
.....  
.....(3)
- d) Divide **256** by **8**  
.....  
.....  
.....(2)
- 2 a) Calculate the value of  **$17 + 3 \times 2$**   
.....  
.....(1)
- b) Use the fact that  **$23 \times 16 = 368$**  to work out;
- i)  **$23 \times 0.16$**  .....(1)
- ii)  **$230 \times 16$**  .....(1)
- iii)  **$368 \div 23$**  .....(1)
- iv)  **$368 \div 8$**  .....(1)

- 3 Look at the following list of numbers.

2    6    11    17    24    33    44    57

Write down the numbers which are;

- a) **Prime** .....(1)  
b) **A factor of 48** .....(1)  
c) **A multiple of 8** .....(1)

- 4 Look at the following list of numbers.

$\frac{4}{20}$       0.05      0.4       $\frac{1}{20}$        $\frac{8}{30}$

Write down the two numbers which are equal to each other.

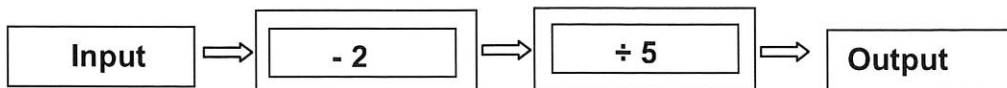
.....(1)

- 5 Calculate.

a)  $\frac{1}{6} \times 42$  .....(1)

a)  $\frac{5}{6} \times 42$  .....(1)

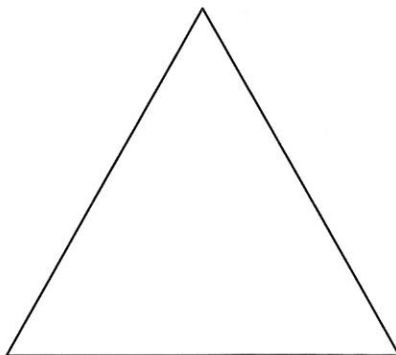
- 6 Look at the number machine below.



- b) What would the output be for an input of 32?  
.....(1)

- a) What input would lead to an output of 4?  
.....(1)

- 7 All the side lengths are equal in this triangle.



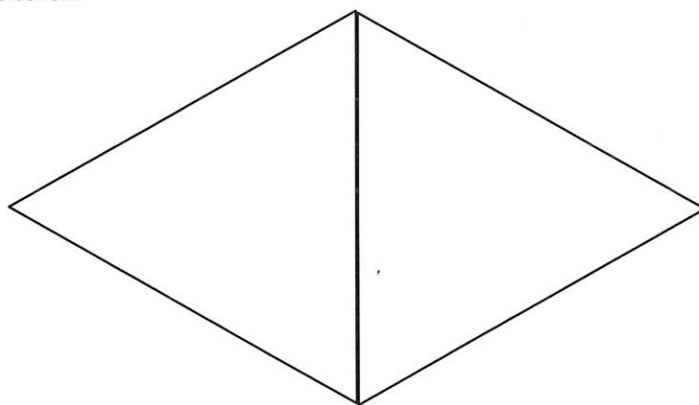
- a) Name the triangle

.....(1)

- b) How many lines of symmetry does the triangle have?

.....(1)

An identical pair of such triangles can be placed together to form a quadrilateral.



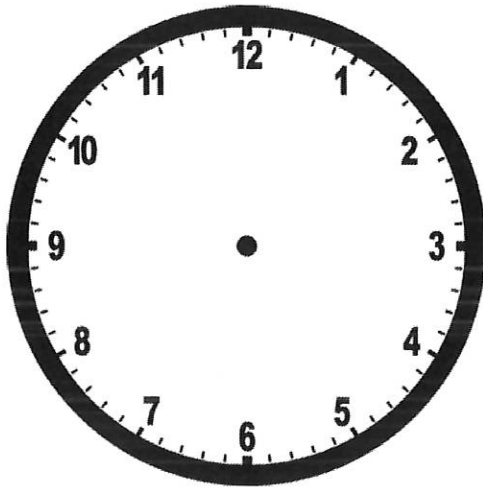
- c) Name the quadrilateral

.....(1)

- d) If the perimeter of the triangle is **18cm** what is the perimeter of the quadrilateral?

.....  
.....cm.(2)

- 8 A bus leaves Liberation Station at 5.20 pm. It arrives 28 minutes later at the airport. Draw the hour and minute hands on this clock to indicate a time of arrival of the bus. (2)



What is the name of the smaller type angle formed by the hour and minute hands?

.....(1)

- 9 A fair six sided die is thrown. (please give your answers as simplified fractions)

a) What is the probability that the outcome will be a six?

.....(1)

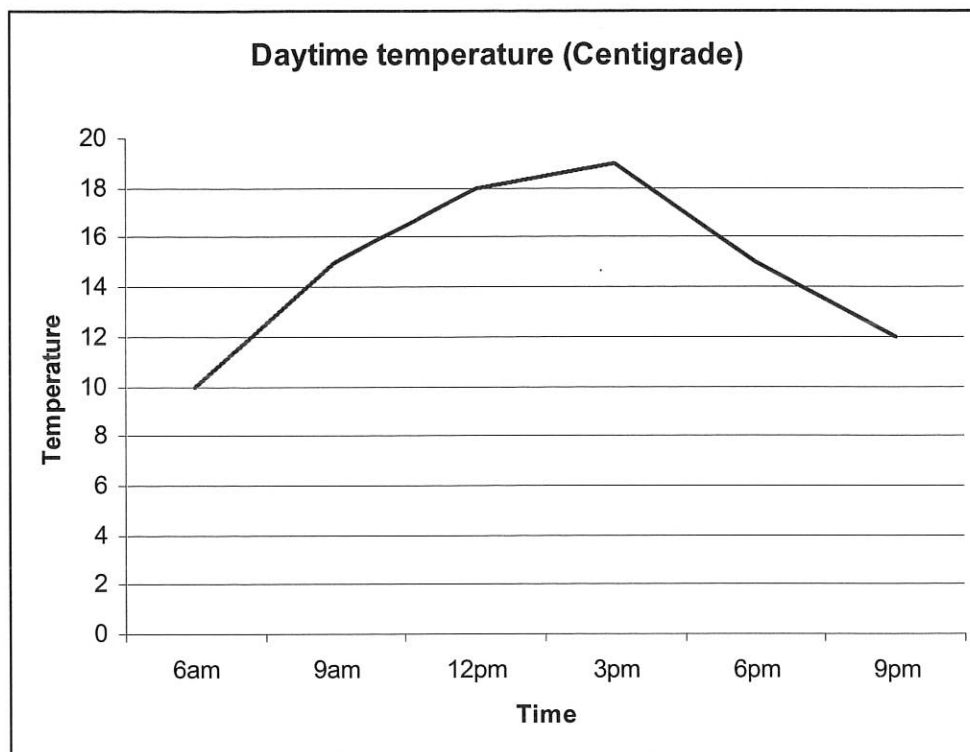
b) What is the probability that the outcome will be an even number?

.....(1)

c) What is more likely, that the outcome will be a prime number or an odd number?

.....(2)

- 10 The following graph shows the how the temperature changed in during a winter day. Temperature readings were taken every 3 hours.



- a) At what time did the minimum temperature occur?  
.....(1)
- b) What was the temperature rise between **9am** and **3pm**?  
.....°C.(1)
- c) What was the difference between the maximum and minimum temperatures?  
.....°C.(1)



11 Here is a set of numbers.

**2, 5, 10, 13, 20,**

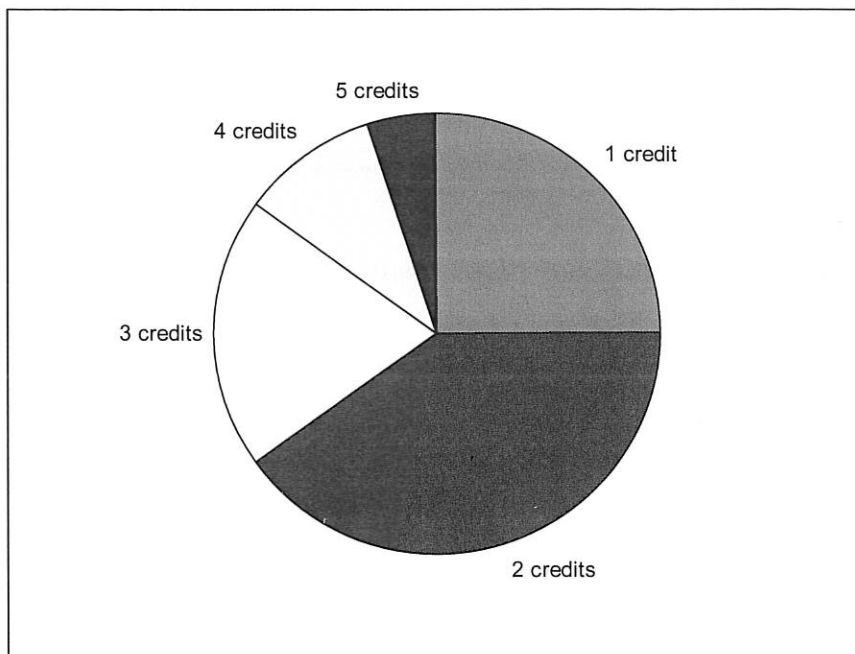
a) Work out the mean of these numbers

.....  
.....(2)

Write down a set of **5** numbers where the mean of the numbers is **8**  
and the highest number is **22**?

.....  
.....(2)

12 The following pie chart shows the number of credits gained by students  
in a class of 20 students.



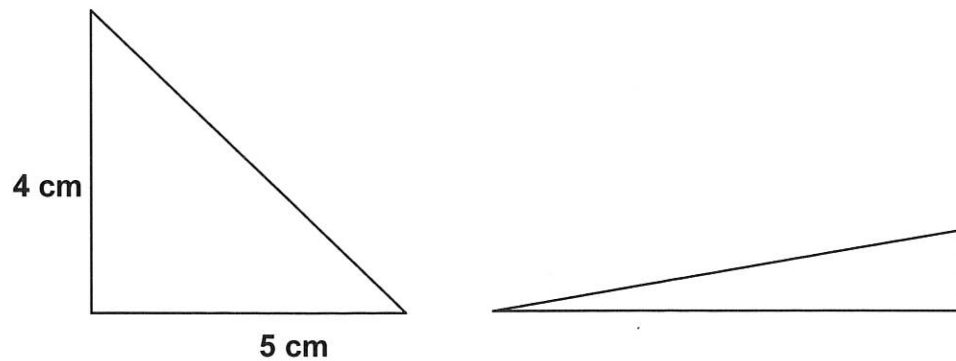
a) How many students received just 1 credit?

.....(1)

b) Calculate the total angle of all the sectors apart from the  
1 credit sector.

.....  
.....(2)

- 13      These left hand triangle is twice the area of the right hand triangle



(The triangles are **not** drawn to scale)

Work out the area of the second triangle.

.....  
.....  
..... $\text{cm}^2$ .(3)

- 14      Calculate  $7 - 4$

..... (1)

- 15      34 litres of orange juice are served at a parents' evening. The juice is served in 5 litre jugs.

a)    How many jugs will be needed?

..... (1)

b)    What volume of juice will be in the part-filled jug?

.....litres (1)

- 16 In all of the following sequences of numbers the next number is generated by taking the last number, multiplying by 3 then subtracting 2.

a) Calculate the next 2 numbers in the sequence below.

2    4    .....    .....    (1)

b) Calculate the first number in the sequence below.

.....    13    37    (2)

c) One of the numbers in this sequence is incorrect.  
Change it to the correct value.

3    7    20    55    (2)

## Solutions

- 1 a) 394 b) 14.17 c)  $157 \times 9 = 1413$ ,  $157 \times 40 = 6280$ , 7693  
d) 32
- 2 a) 23 b) i) 3.68, ii) 3680, iii) 16, iv) 46
- 3 a) 2, 11, 17 b) 2, 6, 24 c) 24
- 4 a) 0.05 and  $\frac{1}{20}$
- 5 a) 7 b) 35
- 6 a) 6 b) 22
- 7 a) Equilateral Triangle b) 3 c) Rhombus or Parallelogram  
d)  $\frac{18}{3} \times 4 = 24$  cm
- 8 Hour hand at 29 min, Minute hand at 48 min  
Obtuse angle
- 9 a)  $\frac{1}{6}$  b)  $\frac{1}{2}$  c) Neither both have same probability  
of  $\frac{1}{2}$
- 10 a) 6am b)  $4^{\circ}\text{C}$  c)  $9^{\circ}\text{C}$
- 11 a)  $50/5 = 10$  b)  $8 \times 5 = 40$  so 4 numbers with sum of 18 and then  
number 22
- 12 a)  $20/4=5$  b)  $360-90 = 270^{\circ}$
- 13 Right hand triangle area =  $10\text{ cm}^2$ , Left hand triangle area =  $5\text{ cm}^2$
- 14 11
- 15 a) 7 b) 4 litres
- 16 a) 10, 28 b) 5 c) change 20 to 19