

Name

Class

**Pre Public Exam
June 2016
Paper 3F
Foundation Tier
Edexcel Style**

Calculator

Time **1 hour 30 minutes**

Marks Available **80**

Commissioned by The PiXL Club Ltd.

Question	Mark	Maximum mark
1		1
2		2
3		3
4		3
5		3
6		5
7		5
8		3
9		2
10		2
11		2
12		2
13		4
14		4
15		3
16		3
17		4
18		4
19		5
20		6
21		4
22		5
23		5
Total		80

Question 1.

Write 34 669 to the nearest thousand

.....

(Total 1 mark)

Question 2.

(a) Simplify $9a - 3a + 5a$

.....

(1)

(b) Simplify $2x \times 3y$

.....

(1)

(Total 2 marks)

Question 3.

Fiona buys a 200g bar of chocolate.

110 grams of the chocolate bar is sugar.

27 grams of the chocolate bar is saturates.

30% of the bar is fat

The remainder of the bar is salt.

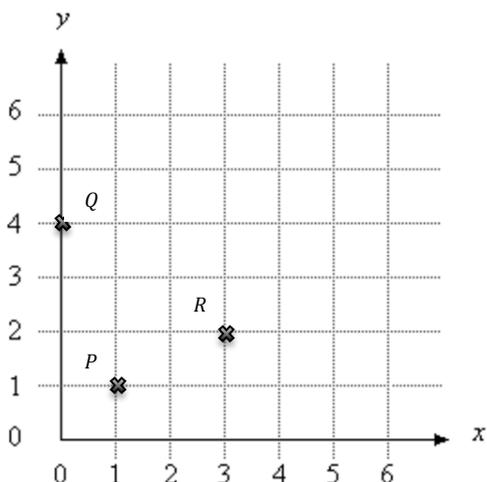
Work out how many grams of salt the chocolate bar contains.

.....grams

(Total 3 marks)

Question 4.

Here is a grid showing points P, Q and R.



(a) Write down the coordinates of the point R.

.....

(1)

(b) On the grid, mark with a cross (×) the point (5, 1).
Label this point T.

(1)

(c) On the grid, mark with a cross (×) a point S, so that the quadrilateral PQRS is a parallelogram.

(1)

(Total 3 marks)

Question 5.

Christine buys a washing machine for £455.

She pays a deposit of £65.

She pays the rest in 12 equal monthly payments.

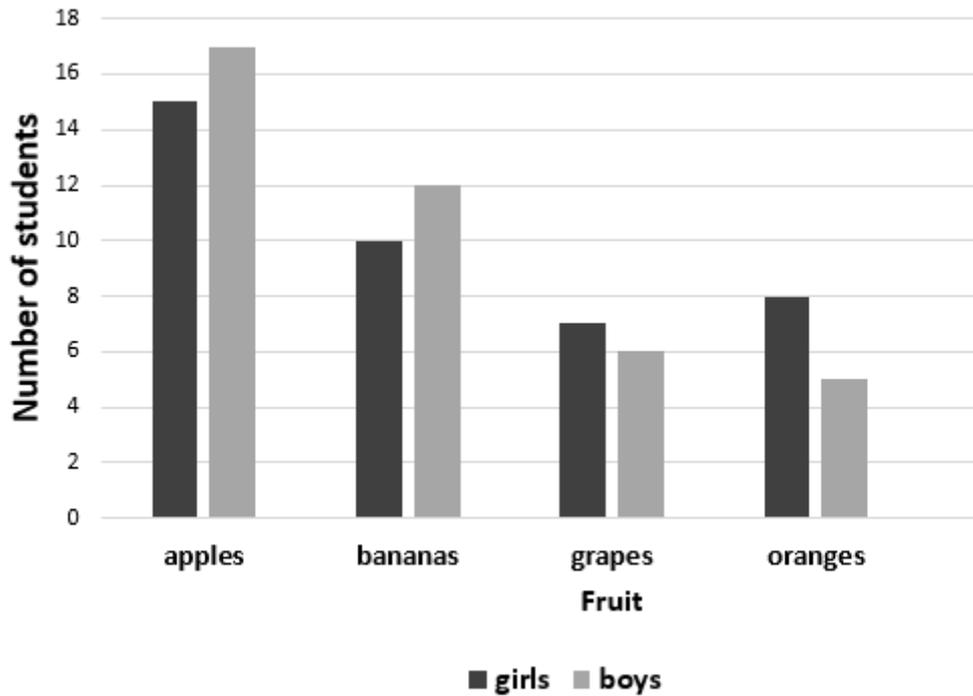
Work out the cost of each monthly payment.

.....

(Total 3 marks)

Question 6.

The bar chart below gives information about the favourite fruits of some students at Stoney Mount School.



(a) What fraction of the students who preferred bananas are boys?

.....
(2)

Chris says,

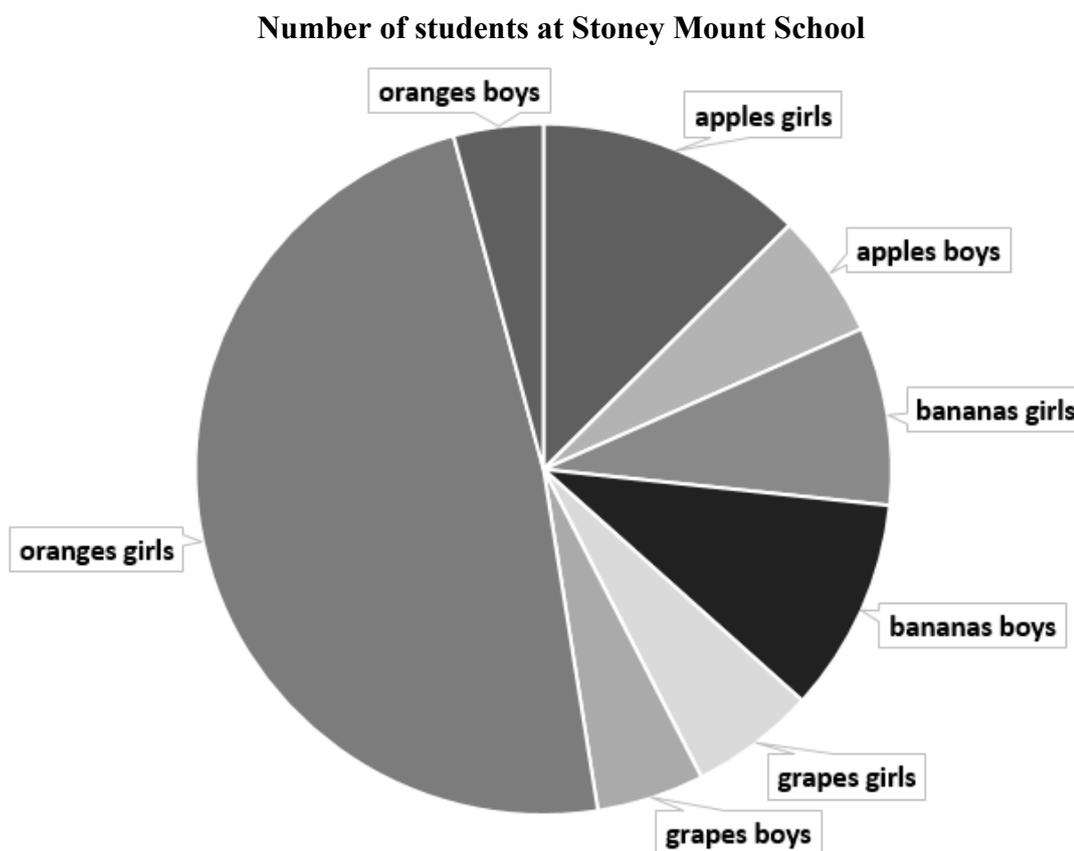
“More boys than girls prefer grapes and apples”

(b) Is Chris correct?

You must give a reason for your answer.

(2)

The pie-chart gives the same information about the favourite fruits of the same students at Stoney Mount School.



Gabriella says,

“It is more difficult to find out the number of students who prefer apples from the pie-chart than from the bar chart.”

(c) Is Gabriella correct?

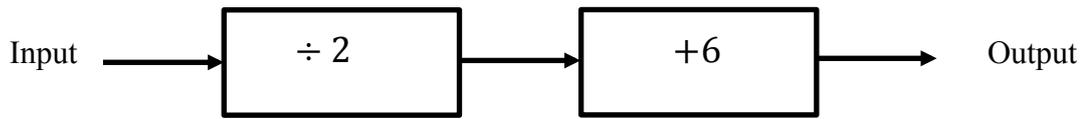
You must give a reason for your answer.

(1)

(Total 5 marks)

Question 7.

Here is a number machine.



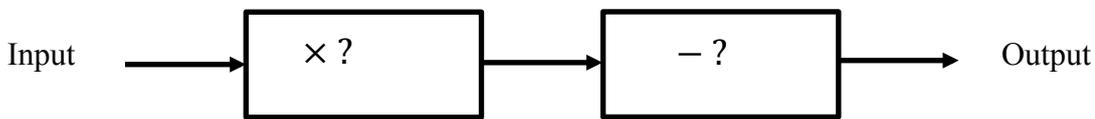
(a) Work out the **output** when the input is 20

.....
(1)

(b) Work out the input when the output is 11

.....
(2)

(c) Here is another number machine.
The numbers in the machines are missing.



When the input is 10, the output is 16.

What numbers could be missing from the number machines?

.....
(2)

(Total 5 marks)

Question 8.

1 foot is 12 inches.

5 cm is approximately 2 inches.

Work out an approximation for the number of cm in 4 feet.

.....cm

(Total 3 marks)

Question 9.

A gym has 360 members.

Members have either peak or off peak membership.

35% of the members have peak membership.

Work out the number of peak members.

.....

(Total 2 marks)

Question 10.

Write the numbers below in order of size.

Start with the smallest number.

$\frac{1}{8}$ 14% $\frac{3}{20}$ 0.12

.....

(2)

(Total 2 marks)

Question 11.

Write down three different factors of 20 that add together to give a prime number.

.....

(Total 2 marks)

Question 12.

The length of a boat is 12.3 metres.

Suzie makes a scale model of the boat.

She uses a scale of 1cm to 30cm.

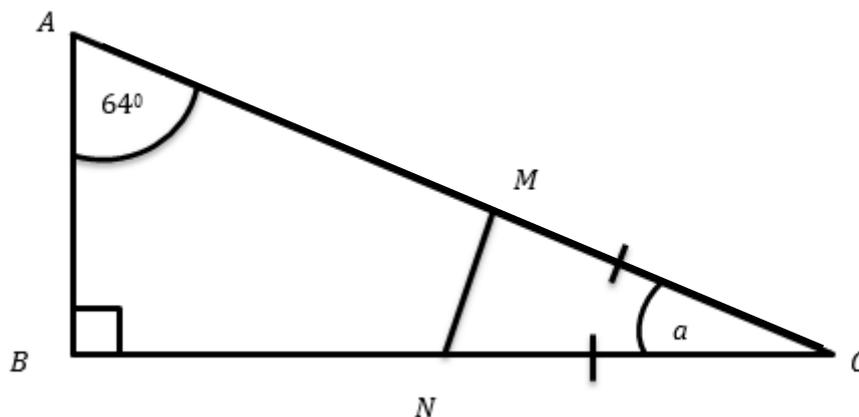
Work out the length of the scale model of the boat.

Give your answer in cm.

.....cm

(Total 2 marks)

Question 13.



ABC is a right-angled triangle.

M is a point on AC

N is a point on BC .

$CM = CN$

(a) (i) Work out the size of the angle marked a .

.....⁰
(1)

(ii) Give a reason for your answer

.....
(1)

(b) Work out the size of angle CMN .

.....
(2)

(Total 4 marks)

Question 14.

The cost of 3 portions of fish and 4 portions of chips is £18.10

The cost of 5 portions of chips is £8.00

Work out the cost of 1 portion of fish and 1 portion of fish.

.....

(Total 4 marks)

Question 15.

Sally has 28 green marbles and 36 black marbles.

$\frac{1}{4}$ of the green marbles are chipped and $\frac{2}{3}$ of the black marbles are chipped.

Sally places the chipped marbles in a bag.

Sally picks at a random, a marble from the bag.

Work out the probability that this marble is green.

.....

(Total 3 marks)

Question 16.

Change 30 m/s into km/h

.....km/h

(Total 3 marks)

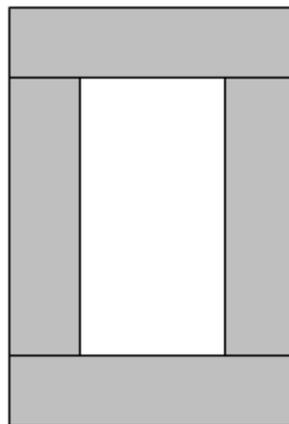
Question 17.

Here is a wooden board.



The measurements in the diagram are in metres.

Four of these rectangles are put together to make a frame for a flower bed.



The perimeter of the inside of the frame is M metres.

(a) Show that $M = 12a - 4b$

(2)

Katie says,

‘When a and b are whole numbers, M is always an even number’

(b) Is Katie correct?

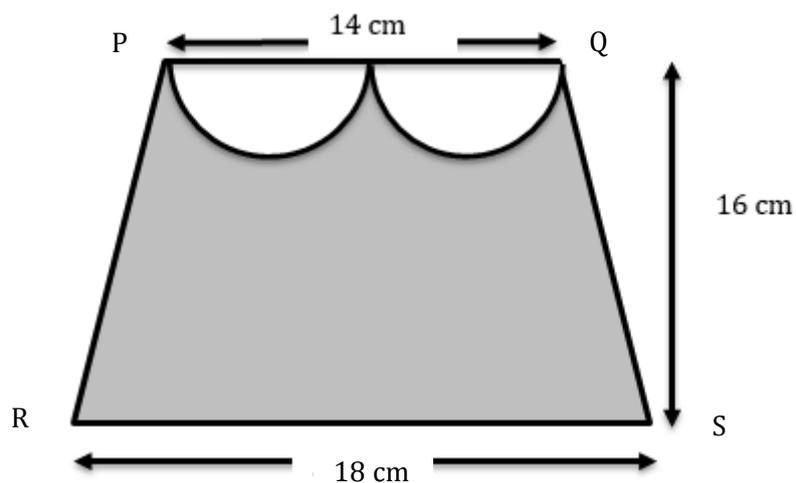
You must give a reason for your answer.

(2)

(Total 4 marks)

Question 18.

The diagram shows a trapezium PQRS and two identical semicircles.



The centre of each circle is on PQ.

Work out the area of the shaded region.

Give your answer correct to 3 significant figures.

(Total 4 marks)

Question 19.

Sanjay is going on holiday to America.
The exchange rate is $\text{£}1 = \$1.45075$

Sanjay changes $\text{£}675$ to dollars.

- (a) Work out how many dollars he should get.
Give your answer correct to the nearest dollar.

..... dollars

(2)

Sanjay sees a pair of trainers in America.
The trainers cost $\$135$.

Sanjay does not have a calculator.

He uses $\text{£}2 = \$3$ to work out the approximate cost of the trainers in pounds.

- (b) Use $\text{£}2 = \$3$ to show that the approximate cost of the trainers is $\text{£}90$.

(2)

- (c) Is using $\text{£}2 = \$3$ instead of using $\text{£}1 = \$1.45075$ a sensible way for Sanjay to work out the cost of the trainers in pounds?

You must give a reason for your answer.

(1)

(Total 5 marks)

Question 20.

Here are the first five terms of a Fibonacci sequence.

1 3 4 7 11

The rule for the sequence is:

‘The next term is the sum of the previous two terms.’

(a) Find the 8th term of this sequence.

.....

(1)

The first three terms of a different sequence which follows the same rule are:

m $2n$ $m + 2n$

(b) Show that the 6th term of this sequence is $3m + 10n$

(2)

Given that the 3rd term is 5 and the 6th term is 23,

(c) Find the value of m and the value of n

$m = \dots\dots\dots$

$n = \dots\dots\dots$

(3)

(Total 6 marks)

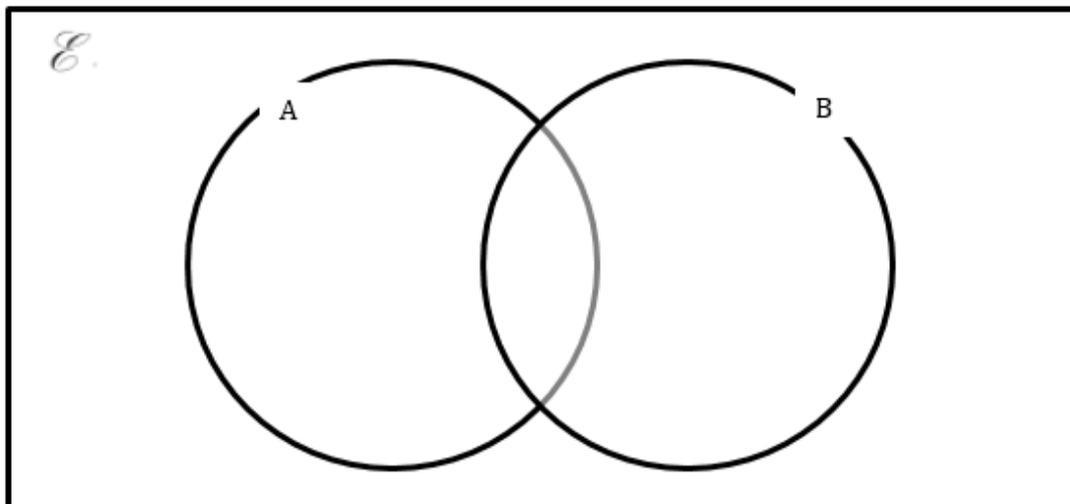
Question 21.

$$\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$$

$$A = \{x: x \text{ is a factor of } 12\}$$

$$B = \{x: x \text{ is a multiple of } 3\}$$

(a) Complete the Venn diagram to show the elements of each set.



(3)

(b) A is changed to $A = \{x: x \text{ is a factor of } 15\}$.

James says: the number of elements in $A \cup B$ stays the same.

Is James right?

Give a reason why.

(1)

(Total 4 marks)

Question 22.

Julie is thinking of having a water meter.

These are the two ways she can pay for the water she uses.

Water meter

A fixed charge of £104.82

Plus

£1.95 for every cubic metre of water used

1 cubic metre = 1000 litres

No water meter

A charge of £283 per year

Julie uses on average, 140 litres of water each day.

Use the information above to determine whether or not Julie should have a water meter.

(Total 5 marks)

Question 23.

The table below shows some information about the sales of two companies and the number of workers for each company in 2005 and 2015.

	Company A		Company B	
	Sales (£ millions)	Number of workers	Sales (£ millions)	Number of workers
2005	310	2760	64	505
2015	418	3120	82	560

(a) Work out the percentage increase in sales from 2005 to 2015 for Company A.

.....
(2)

(b) Which company had the most sales per worker in 2015, Company A or company B?

.....
(3)
(Total 5 marks)

TOTAL FOR PAPER IS 80 MARKS