

Answer ALL TWENTY SIX questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Show that $4\frac{2}{3} \div 1\frac{5}{6} = 2\frac{6}{11}$

(Total for Question 1 is 3 marks)

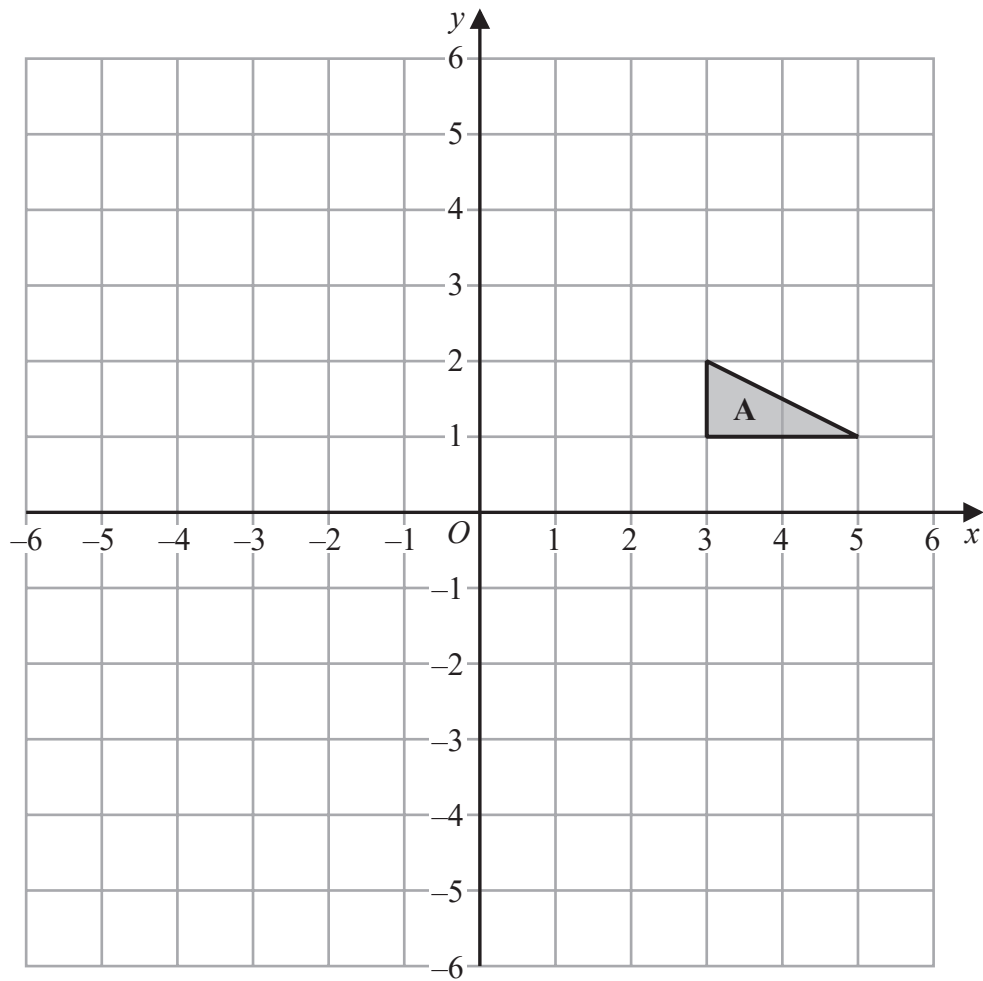
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P 7 2 4 4 4 A 0 3 3 2



- (a) On the grid, rotate triangle **A** 180° about $(1, -1)$
Label the new triangle **B**

(2)

- (b) On the grid, translate triangle **A** by the vector $\begin{pmatrix} -7 \\ 3 \end{pmatrix}$

Label the new triangle **C**

(1)

(Total for Question 2 is 3 marks)



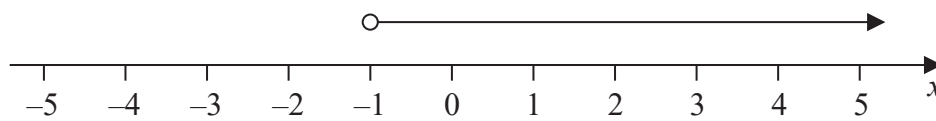
3 $-8 < 2y \leq 2$

y is an integer.

(a) Find all the possible values of y

.....
(2)

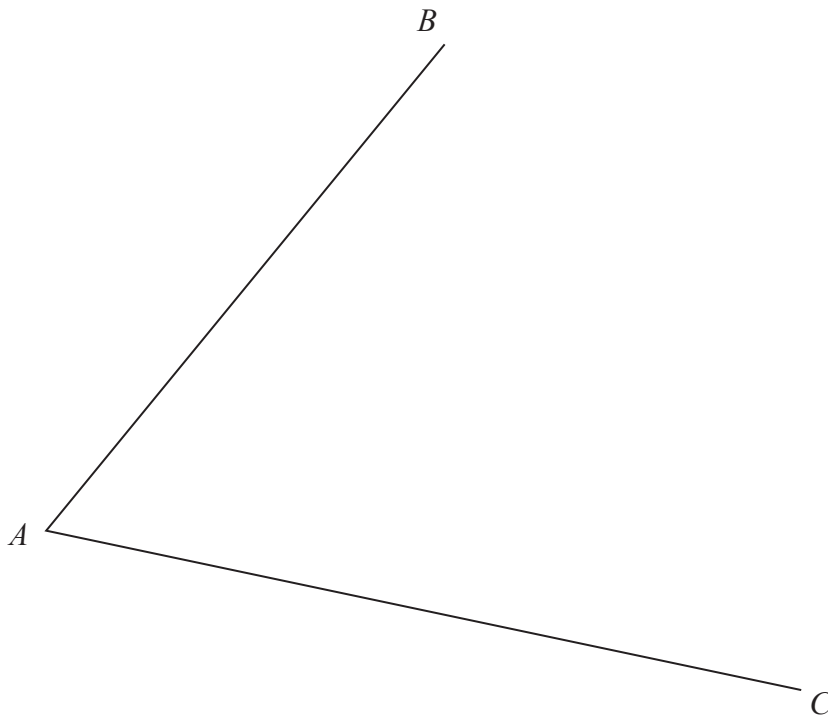
(b) Write down the inequality shown on the number line.



.....
(1)

(Total for Question 3 is 3 marks)

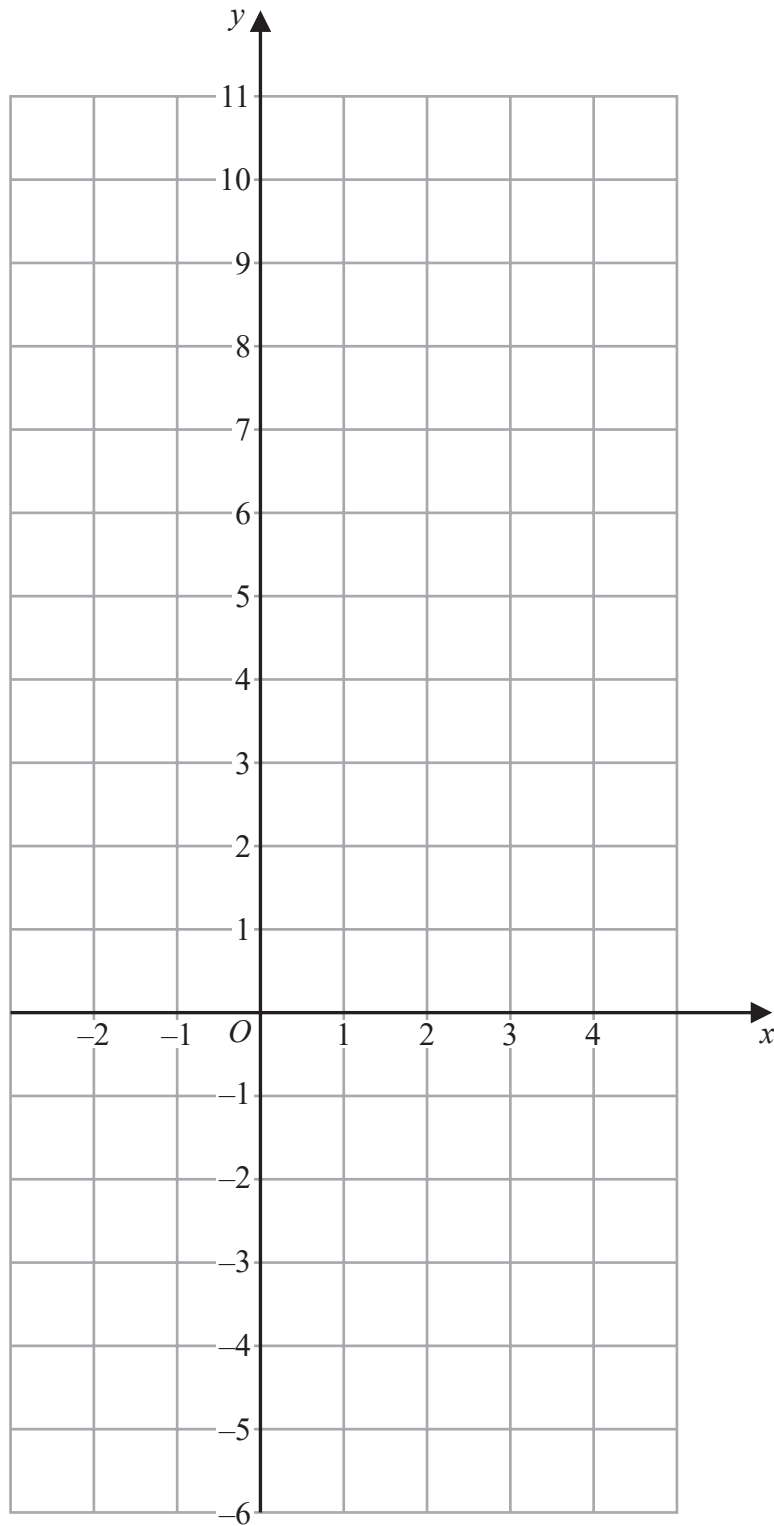
4 Using ruler and compasses only, construct the bisector of angle BAC
You must show all your construction lines.



(Total for Question 4 is 2 marks)



5 On the grid, draw the graph of $5x + 2y = 10$ for values of x from -2 to 4



(Total for Question 5 is 3 marks)

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6 In a bag, there are only red counters, blue counters, green counters and yellow counters.

The total number of counters in the bag is 80

In the bag

the number of red counters is $x + 7$

the number of blue counters is $x - 11$

the number of green counters is $3x$

Jude takes at random a counter from the bag.

The probability that he takes a red counter is $\frac{1}{4}$

Work out the probability that Jude takes a yellow counter.

.....
(Total for Question 6 is 4 marks)



7 (a) Find the highest common factor (HCF) of 200 and 420

.....
(2)

$$A = 2^3 \times 3 \times 5 \times 7^2$$

$$B = 2 \times 3^2 \times 7$$

$$C = 3 \times 5^2 \times 11$$

(b) Find the lowest common multiple (LCM) of A , B and C
Write your answer as a product of powers of prime factors.

.....
(2)

(Total for Question 7 is 4 marks)



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8 60 students sat a Mathematics exam.

The mean mark for the 32 students in Class A was 55

The mean mark for the 28 students in Class B was 52

Find the mean mark for all 60 students.

(Total for Question 8 is 3 marks)



9 Teresa invests \$2000 for 3 years in a savings account.
She gets 4% each year compound interest.

- (a) How much money will Teresa have in her savings account at the end of 3 years?
Give your answer correct to the nearest dollar.

\$.....
(3)

Sam invested \$ T

The value of his investment decreased by 9% each year.

At the end of the first year, the value of Sam's investment was \$1365

- (b) Work out the value of T

.....
(3)

(Total for Question 9 is 6 marks)



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10 The diagram shows two solids, **A** and **B**, made from two different metals.

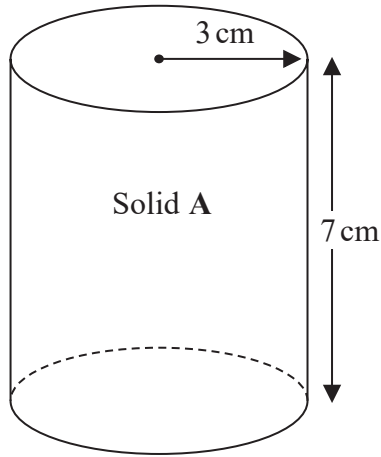
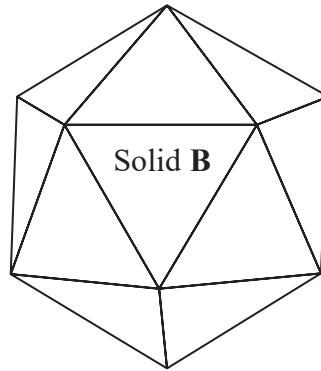


Diagram **NOT** accurately drawn



Solid **A** is in the shape of a cylinder with radius 3 cm and height 7 cm
Solid **A** has a mass of 2000 g

Solid **B** has a mass of 3375 g
Solid **B** has a volume of 450 cm³

All of the metal from Solid **A** and Solid **B** is melted down to make a uniform Solid **C**

Given that there is no change to mass or volume during this process

work out the density of Solid **C**
Give your answer correct to one decimal place.

..... g/cm³

(Total for Question 10 is 3 marks)



11

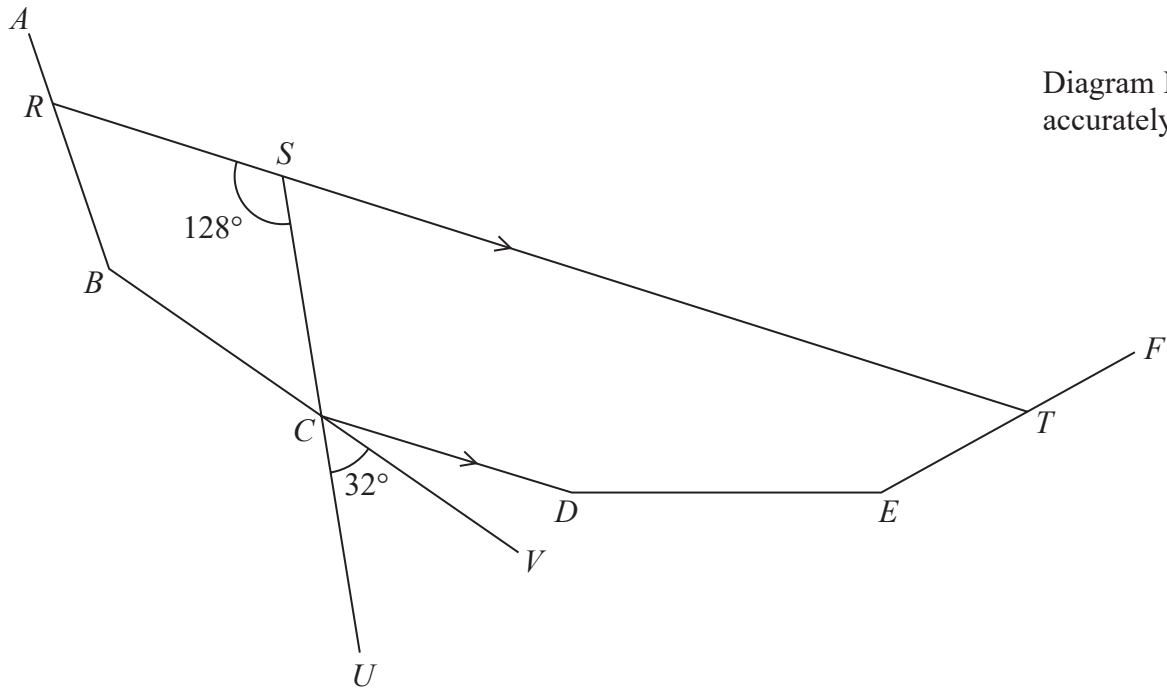


Diagram **NOT** accurately drawn

AB, BC, CD, DE and EF are five sides of a regular polygon.

RST, SCU and BCV are straight lines.

RST is parallel to CD

Angle $RSC = 128^\circ$

Angle $UCV = 32^\circ$

Work out how many sides the polygon has.

Show your working clearly.

(Total for Question 11 is 4 marks)

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