

14 Sandeep sat 11 tests in January 2020

Each test was marked out of 60

Here are his test results.

45    41    35    44    38    47    47    39    37    43    42

- (a) Find the interquartile range of these test results.  
Show your working clearly.

.....  
(3)

Sandeep also sat some tests in May 2020

Each test was marked out of 60

The median of the May 2020 test results is 42

The interquartile range of the May 2020 test results is 12

- (b) In which month, January or May, were Sandeep's test results more consistent?  
Give a reason for your answer.

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

(Total for Question 14 is 4 marks)



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15 Platinum nuggets are in the shape of a solid cylinder.

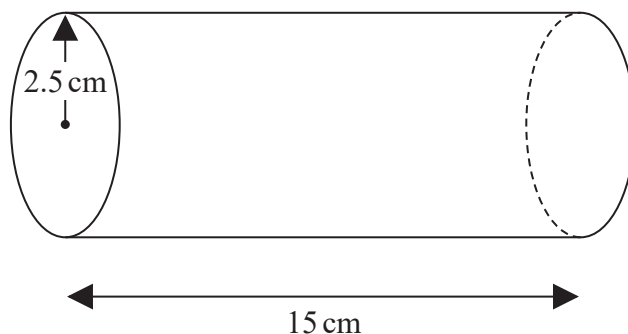


Diagram **NOT** accurately drawn

The radius of each cylinder is 2.5 cm.

The length of each cylinder is 15 cm.

The density of platinum is  $21.5 \text{ g/cm}^3$

The greatest mass that Jacques can carry is 30 kg.

Can Jacques carry 5 platinum nuggets at the same time?

You must show all your working.

(Total for Question 15 is 5 marks)



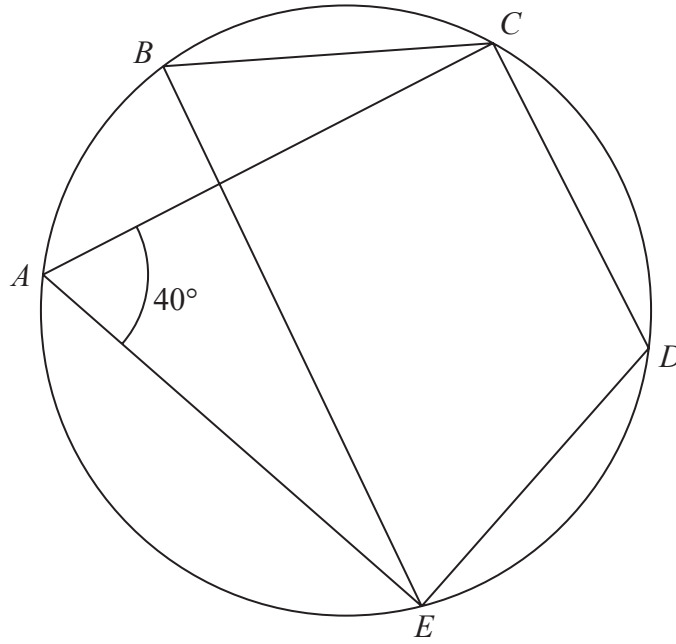


Diagram **NOT** accurately drawn

$A, B, C, D$  and  $E$  are points on a circle.

Angle  $EAC = 40^\circ$

(a) (i) Write down the size of angle  $EBC$ .

.....  
(1)

(ii) Give a reason for your answer.

.....  
(1)

(b) Find the size of angle  $EDC$ .

.....  
(1)

**(Total for Question 16 is 3 marks)**

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17 Given that  $n > 0$

make  $n$  the subject of the formula  $y = \frac{n^2 + d}{n^2}$

.....  
(Total for Question 17 is 4 marks)



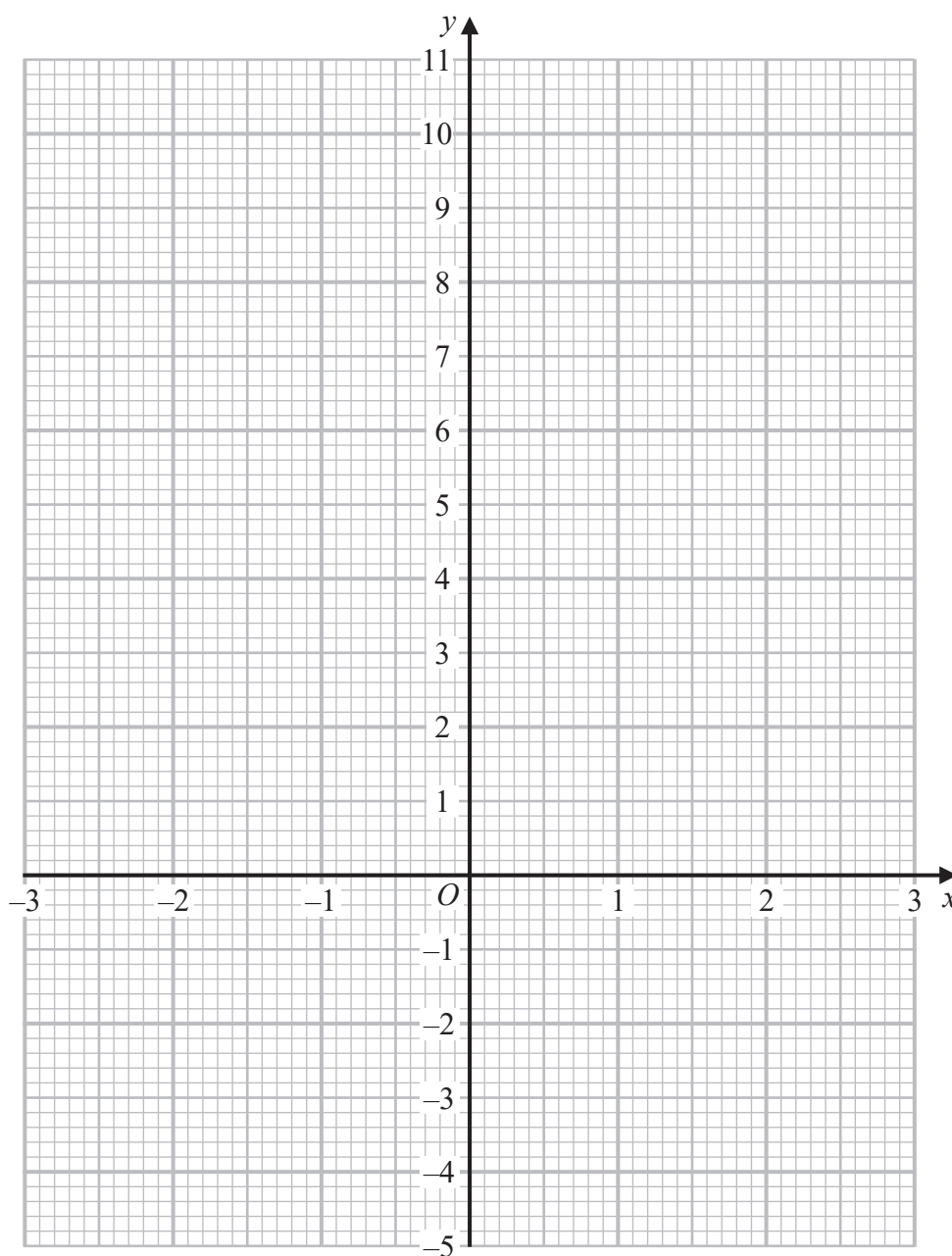
P 6 4 6 9 3 A 0 1 5 2 8

18 (a) Complete the table of values for  $y = \frac{1}{2}x^3 - 2x + 3$

|     |      |    |    |   |   |   |   |
|-----|------|----|----|---|---|---|---|
| $x$ | -3   | -2 | -1 | 0 | 1 | 2 | 3 |
| $y$ | -4.5 |    |    | 3 |   | 3 |   |

(2)

(b) On the grid, draw the graph of  $y = \frac{1}{2}x^3 - 2x + 3$  for  $-3 \leq x \leq 3$



(2)



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(c) By drawing a suitable straight line on the grid, find an estimate for the solution of the equation  $\frac{1}{2}x^3 - x + 4 = 0$

$x = \dots\dots\dots$   
(2)

**(Total for Question 18 is 6 marks)**



P 6 4 6 9 3 A 0 1 7 2 8

19

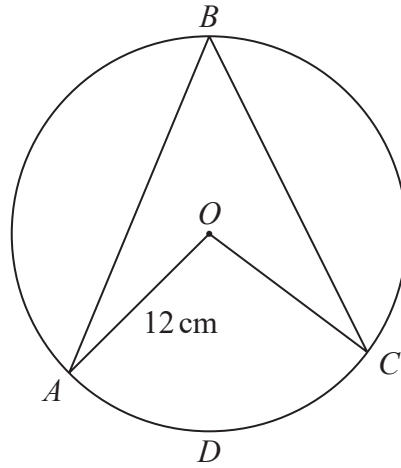


Diagram **NOT**  
accurately drawn

$A$ ,  $B$ ,  $C$  and  $D$  are points on a circle with centre  $O$  and radius  $12\text{ cm}$ .

The area of the sector  $OADC$  of the circle is  $100\text{ cm}^2$

Work out the size of angle  $ABC$ .

Give your answer correct to 3 significant figures.

.....  
(Total for Question 19 is 4 marks)

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20  $T$  is inversely proportional to  $m^2$

$$T = 30 \text{ when } m = 0.5$$

(a) Find a formula for  $T$  in terms of  $m$ .

.....  
(3)

(b) Work out the value of  $T$  when  $m = 0.1$

.....  
(1)

(Total for Question 20 is 4 marks)

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