

Answer ALL TWENTY THREE questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1 (a) Make a the subject of the formula $M = ac - bd$

.....
(2)

- (b) Solve the inequality $5x - 4 < 39$

.....
(2)

- (c) Factorise fully $18e^2f^3 - 12e^3f$

.....
(2)

(Total for Question 1 is 6 marks)



- 2 Work out the difference between the largest share and the smallest share when 3450 yen is divided in the ratios 2:6:7

..... yen

(Total for Question 2 is 3 marks)

- 3 Gopal is paid 20 000 rupees each month.
Jamuna is paid 19 200 rupees each month.

Gopal and Jamuna are both given an increase in their monthly pay.
After the increase, they are both paid the same amount each month.

Gopal was given an increase of 8%

Work out the percentage increase that Jamuna was given.

.....%

(Total for Question 3 is 4 marks)

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4 Show that $3\frac{4}{7} - 1\frac{5}{8} = 1\frac{53}{56}$

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(Total for Question 4 is 3 marks)



- 5 In the diagram below, P and Q are points on a circle with centre O .

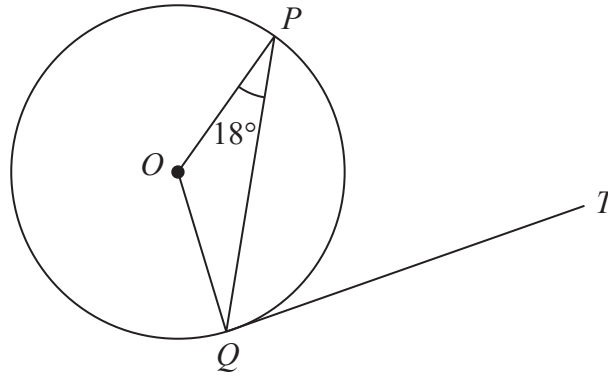


Diagram **NOT**
accurately drawn

QT is a tangent to the circle.
Angle $OPQ = 18^\circ$

Work out the size of angle PQT .
Give a reason for each stage of your working.

(Total for Question 5 is 3 marks)

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6 The diagram shows two cylinders, **A** and **B**.

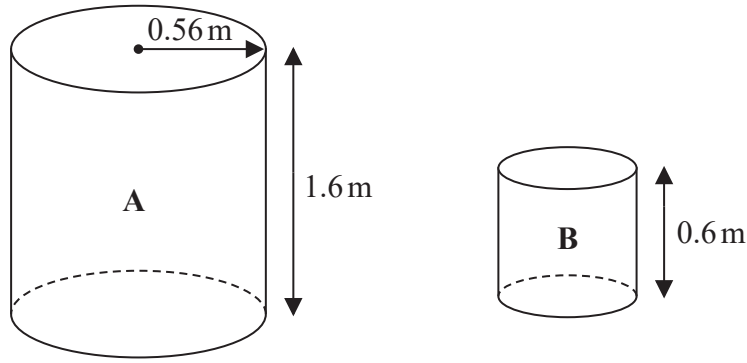


Diagram **NOT** accurately drawn

Cylinder **A** has height 1.6 m and radius 0.56 m.

- (a) Work out the curved surface area of cylinder **A**.
Give your answer in m^2 correct to 3 significant figures.

..... m^2
(2)

Cylinder **B** is mathematically similar to cylinder **A**.
The height of cylinder **B** is 0.6 m.

- (b) Work out the radius of cylinder **B**.

..... m
(2)

(Total for Question 6 is 4 marks)

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7 The students in Class A and in Class B take the same examination.

There are 28 students in Class A and 32 students in Class B.
The mean score for all the students in both classes is 72.6
The mean score for the students in Class A is 75

(a) Work out the mean score for the students in Class B.

.....
(4)

The lowest score in Class A is 39
The range of scores for Class A is 57
The lowest score in Class B is 33
The range of scores for Class B is 60

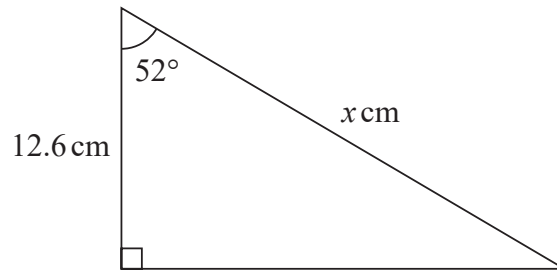
(b) Find the range of scores for all the students in both classes.

.....
(3)

(Total for Question 7 is 7 marks)



8

Diagram **NOT**
accurately drawn

Work out the value of x .
Give your answer correct to 3 significant figures.

 $x = \dots\dots\dots$ **(Total for Question 8 is 3 marks)**

9 Solve the simultaneous equations

$$\begin{aligned}x + y &= 15 \\ 7x - 5y &= 3\end{aligned}$$

Show clear algebraic working.

 $x = \dots\dots\dots$ $y = \dots\dots\dots$ **(Total for Question 9 is 3 marks)**

10 $\frac{8}{2^7} = 2^n$

(a) Find the value of n .

$n = \dots\dots\dots$
(2)

$(13^{-6})^4 \times 13^5 = 13^k$

(b) Find the value of k .

$k = \dots\dots\dots$
(2)

(Total for Question 10 is 4 marks)

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