(c) Find $n(C' \cap D')$

....

(1)

(Total for Question 17 is 6 marks)

18
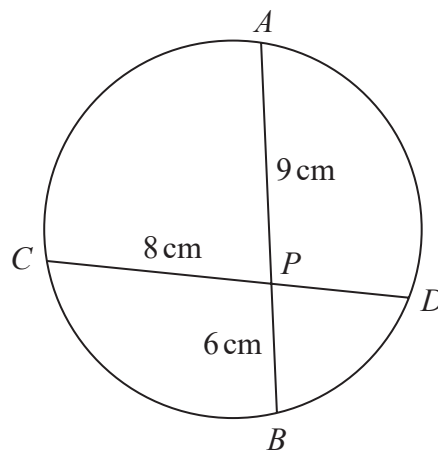
Diagram **NOT** accurately drawn

APB and *CPD* are chords of a circle.

AP = 9 cm   *PB* = 6 cm   *CP* = 8 cm

Calculate the length of *PD*.

.... cm

(Total for Question 18 is 2 marks)

19 (a) Solve $\dfrac{4 - 3x}{5} - \dfrac{3x - 5}{2} = -3$

Show clear algebraic working.

$x =$ ....

(3)

(b) Solve the inequality $5y^2 - 17y \leqslant 40$

....

(3)

(Total for Question 19 is 6 marks)

20 The diagram shows two similar vases, **A** and **B**.

Diagram **NOT** accurately drawn

13 cm

9 cm

A   **B**
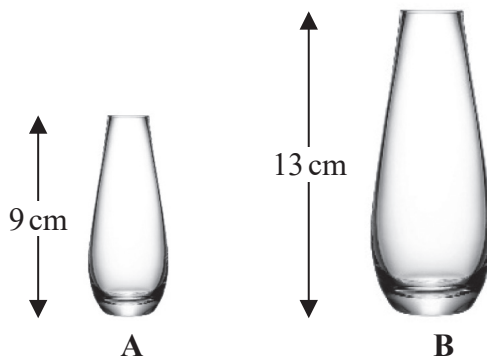
The height of vase **A** is 9 cm and the height of vase **B** is 13 cm.

Given that

surface area of vase **A** + surface area of vase **B** = 1800 cm²

calculate the surface area of vase **A**.

.... cm²

(Total for Question 20 is 4 marks)

21 (a) Simplify fully $\dfrac{10x^2 + 23x + 12}{4x^2 - 9}$

....

(3)

$$2^{2y} \times 2^{3y+2} = \dfrac{8^{5y}}{4^n}$$

(b) Find an expression for n in terms of y.
Show clear algebraic working and simplify your expression.

....

(4)

(Total for Question 21 is 7 marks)

22 The first term of an arithmetic series S is -6
The sum of the first 30 terms of S is 2865

Find the 9th term of S.

....

(Total for Question 22 is 4 marks)

23 Express $7 - 12x - 2x^2$ in the form $a + b(x + c)^2$ where a, b and c are integers.

....

(Total for Question 23 is 3 marks)

24 $\mathbf{L_1}$ and $\mathbf{L_2}$ are two straight lines.
   The origin of the coordinate axes is O.

   $\mathbf{L_1}$ has equation $5x + 10y = 8$
   $\mathbf{L_2}$ is perpendicular to $\mathbf{L_1}$ and passes through the point with coordinates $(8, 6)$

   $\mathbf{L_2}$ crosses the x-axis at the point A.
   $\mathbf{L_2}$ intersects the straight line with equation $x = -3$ at the point B.

   Find the area of triangle AOB.
   Show your working clearly.

....

(Total for Question 24 is 5 marks)

25 N is a multiple of 5

$A = N + 1$
$B = N - 1$

Prove, using algebra, that $A^2 - B^2$ is always a multiple of 20

(Total for Question 25 is 3 marks)
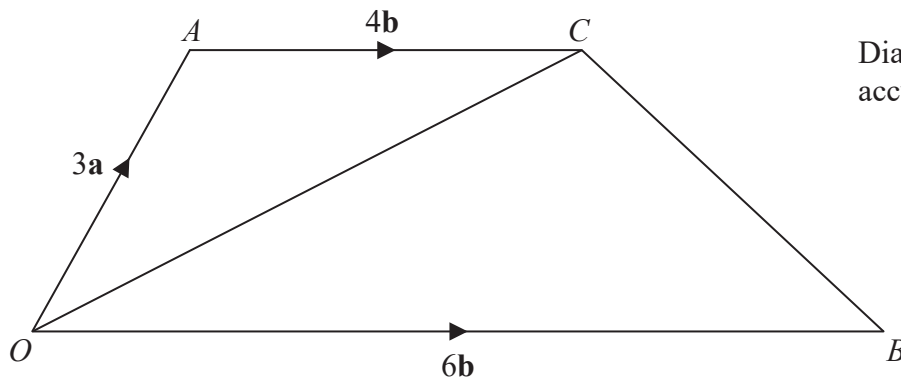
26 The diagram shows trapezium *OACB*.

Diagram **NOT** accurately drawn

$\overrightarrow{OA} = 3\mathbf{a}$ $\overrightarrow{OB} = 6\mathbf{b}$ $\overrightarrow{AC} = 4\mathbf{b}$

N is the point on *OC* such that *ANB* is a straight line.

Find $\overrightarrow{ON}$ as a simplified expression in terms of **a** and **b**.

....

(Total for Question 26 is 5 marks)

TOTAL FOR PAPER IS 100 MARKS