

REVISION WORKSHEET 4

Numbers & Computation & Consumer Arithmetic

1)

Tickets for the theatre cost either \$10 or \$16.

(a) Calculate the total cost of 197 tickets at \$10 each and 95 tickets at \$16 each. [1]

(b) On Monday, 157 tickets at \$10 and n tickets at \$16 were sold. The total cost was \$4018. Calculate the value of n . [2]

(c) On Tuesday, 319 tickets were sold altogether. The total cost was \$3784. Using x for the number of \$10 tickets sold and y for the number of \$16 tickets sold, write down two equations in x and y .

Solve your equations to find the number of \$10 tickets and the number of \$16 tickets sold. [5]

(d) On Wednesday, the cost of a \$16 ticket was reduced by 15%. Calculate this new reduced cost. [2]

(e) The \$10 ticket costs 25% more than it did last year. Calculate the cost last year. [2]

ALGEBRA

2) (a) Write $\frac{3}{x} - \frac{2}{x+1}$ as a single fraction in its simplest form.

Answer (a)

(b) Solve the equation $\frac{3}{x} - \frac{2}{x+1} = 0$.

Answer (b) $x =$

3)

Solve the simultaneous equations

$$\begin{aligned} 4x + 5y &= 0, \\ 8x - 15y &= 5. \end{aligned}$$

4)

Find the exact value of

(a) 3^{-2} ,

Answer (a) [1]

(b) $\left(1\frac{7}{9}\right)^{\frac{1}{2}}$.

Answer (b) [2]

5)

(a) The surface area of a person's body, A square metres, is given by the formula

$$A = \sqrt{\frac{hm}{3600}}$$

where h is the height in centimetres and m is the mass in kilograms.

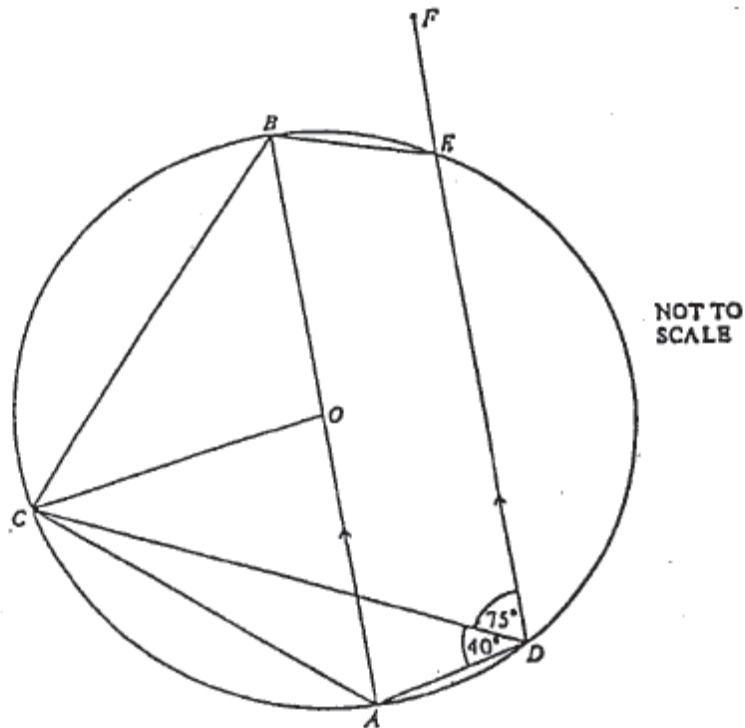
- (i) Dolores is 167 cm high and has a mass of 70 kg. Calculate the surface area of her body. [1]
- (ii) Erik has a mass of 80 kg. Find his height if $A = 1.99$. [2]
- (iii) Make h the subject of the formula. [3]

(b) Factorise

- (i) $x^2 - 16$, [1]
- (ii) $x^2 - 16x$, [1]
- (iii) $x^2 - 9x + 8$, [2]

GEOMETRY & TROGNOMETRY

6)

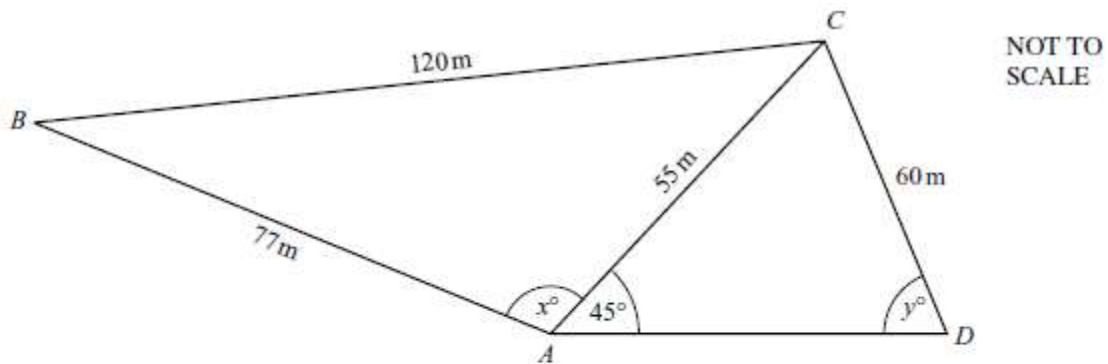


In the diagram above, DEF is parallel to the diameter, AB , of the circle, centre O . Points C , D and E lie on the circumference of the circle.

Given that $\angle ADC = 40^\circ$ and $\angle CDE = 75^\circ$ calculate,

- (a) $\angle \widehat{BC}$, [2]
- (b) $\angle \widehat{OC}$, [2]
- (c) $\angle \widehat{BE}$, [2]
- (d) $\angle \widehat{EF}$, [2]
- (e) $\angle \widehat{AD}$. [2]

7)

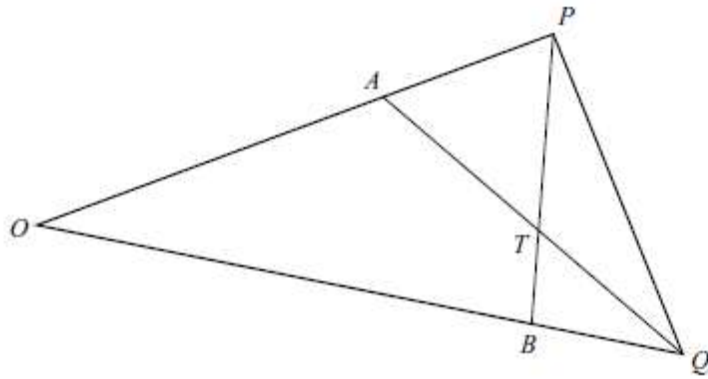


In quadrilateral $ABCD$, $AB = 77$ m, $BC = 120$ m, $CD = 60$ m and diagonal $AC = 55$ m. Angle $CAD = 45^\circ$, angle $BAC = x^\circ$ and angle $ADC = y^\circ$.

- (a) Calculate the value of x . [4]
- (b) Calculate the value of y . [4]
- (c) The bearing of D from A is 090° . Find the bearing of
 - (i) A from C , [2]
 - (ii) B from A . [2]

MATRICES & VECTORS

8)



NOT TO
SCALE

In the diagram $OA = \frac{2}{3}OP$ and $OB = \frac{3}{4}OQ$.
 $\vec{OP} = \mathbf{p}$ and $\vec{OQ} = \mathbf{q}$.

(a) Find in terms of \mathbf{p} and \mathbf{q}

(i) \vec{AQ} ,

Answer (a)(i) $\vec{AQ} = \dots\dots\dots$ [2]

(ii) \vec{BP} .

Answer (a)(ii) $\vec{BP} = \dots\dots\dots$ [2]

(b) AQ and BP intersect at T .

$BT = \frac{1}{3}BP$.

Find \vec{QT} in terms of \mathbf{p} and \mathbf{q} , in its simplest form.