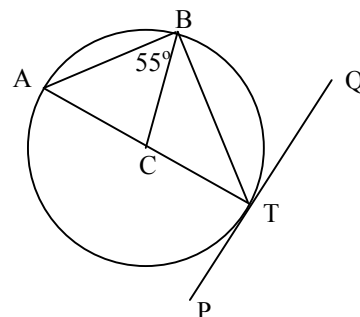


S3 TJ Credit Revision – March Exam

Non Calculator

- 1) Evaluate : $68.4 - 53.4 \div 5$
- 2) Evaluate: a) $5 + 3 \times 4$ b) $9 - (4 + 8)$
- 3) Calculate the following : a) $347 \div 40$ b) $\sqrt{49} - 5^2$.
- 4) Write these numbers in Scientific Notation (Standard Form):
a) 3840 b) 17300 c) 17.2 d) 0.00000097 e) 0.0081
- 5) Write these numbers out in full:
a) 4.7×10^2 b) 6.58×10^4 c) 9.17×10^{-1} d) 3.19×10^{-4} e) 6.001×10^3
- 6) A communications satellite travels at a speed of 7.5×10^5 km/hr. Write this number in full.
- 7) If $a = 3, b = 7, c = -2$, evaluate:
a) $5a + b$ b) $b + c$ c) $3a - 2c$
- 8) If $a = 2, b = 4, c = -3$, evaluate:
(i) ab (ii) ac (iii) $ab - ac$ (iv) a^2 (v) $a^2 + c^2$
- 9) a) Evaluate : $\frac{b}{a}$ where $a = -2$ and $b = 8$.
- b) Evaluate : $u^2 + 3uv$ where $u = -3$ and $v = 7$.
- 10) Factorise:
- a) $3x + 12$ b) $5x - 15$ c) $6x - 10$ d) $2x + 5xy$
e) $4ab + 10b$ f) $4x + 6x^2$ g) $8x + x^2$ h) $y^2 - 3^2$
i) $x^2 - 36$ j) $2x^2 - 18$ k) $5y^2 - 20$ l) $4a^2 - 16$
m) $9y^2 - 25$ n) $16x^2 - 9$ o) $x^2 + 10x + 21$ p) $y^2 + 7y + 12$
q) $x^2 + 5x - 14$ r) $x^2 - 4x - 32$ s) $y^2 - 7y + 10$ t) $y^2 - 11x + 28$
u) $2x^2 + 9x + 10$ v) $2y^2 + 11y + 12$ w) $3x^2 + 10x + 3$

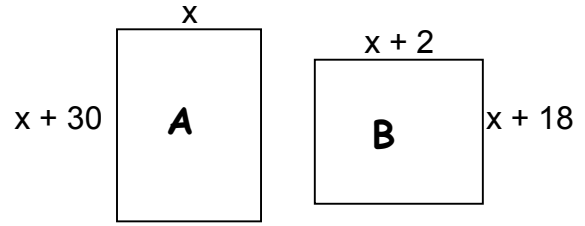
- 11) PQ is a tangent to the circle, centre C.
AT is a diameter and B is a point on the circumference of the circle.
Angle ABC = 55°



Calculate Angle QTB.
Explain your answer fully.

12) a) Expand and simplify : a) $(p - 3r)(5p + 2r)$ b) $(x + 2)^2 + 5(x + 2)$

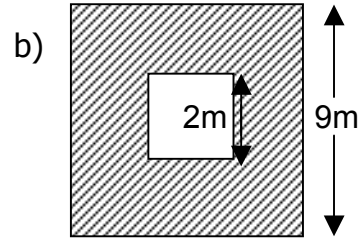
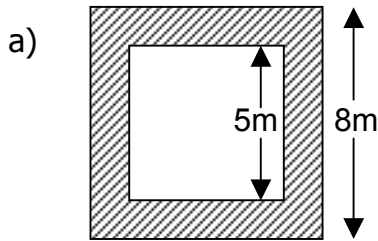
13) a) Write down an equation for the area of rectangle A



b) Write down an equation for the area of rectangle B

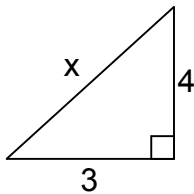
c) If the rectangles have the same area, find x.

14) Calculate the shaded areas:

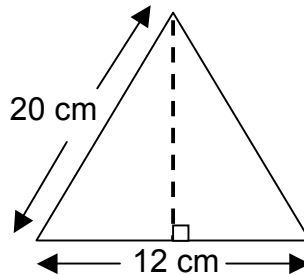


Calculator

15) Find x

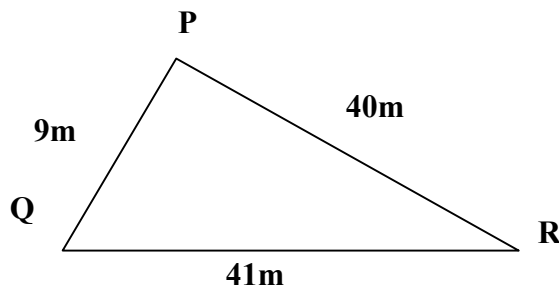


16) Find the height of the triangle



17) The number of people suffering from a virus is 120,000. For each of the next three years, the number of people suffering from the virus is expected to be 5% more than the number in the previous year. How many people are expected to be suffering from the virus in 3 years time?

18) Prove that triangle PQR is right angled at P. (Do not use Trig)

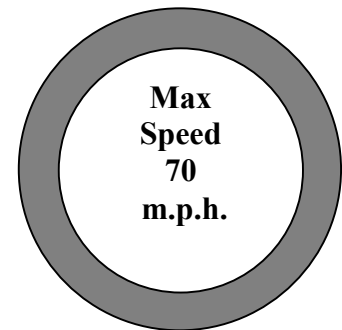


- 19) a) A plane journeys 4800 km across the Atlantic in 8 hours.
Calculate the average speed. (*state the units*)
- b) I manage to walk the 9 miles to the coast in 2 hours 15 minutes.
What is my average speed?
- 20) a) How long would a ship, sailing at 16 miles per hour, take to cover the 136 miles between two ports?
- b) A cyclist averages 30 km/hr in a race. How long did it take him to cover the 125 km?
(*answer in hours and minutes*)
- 21) A plane's average speed is 360 km/hr. How far did it travel in 3 ½ hours?

- 22) Two service stations, on the M6 motorway are 315 miles apart.

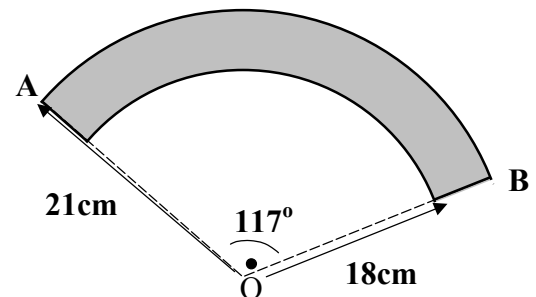
I left one of the service stations at 2:20 p.m.
Without breaking the speed limit, could I possibly reach the other one by 7:00 p.m.?

Explain your answer showing all working.



- 23) In the diagram opposite, O is the centre of two concentric circles with radii 18cm and 21cm as shown.
Angle AOB = 117° .

Calculate the shaded area.



- 24) Calculate the height, H, of the ladder up the wall.

