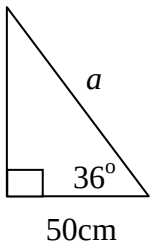
A calculator may be used except for question 7.

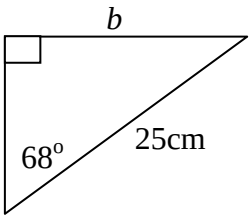
1) Solve these two simultaneous equations:

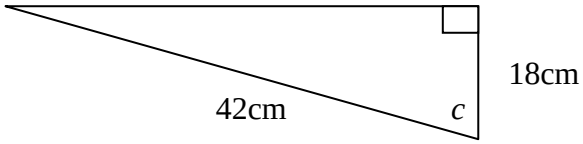
$2t + 3s = 6$

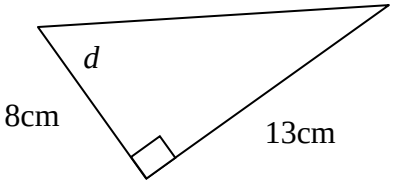
$3t - 2s = 22$

2) Work out the lengths or angles indicated by the letters *a* to *d*.





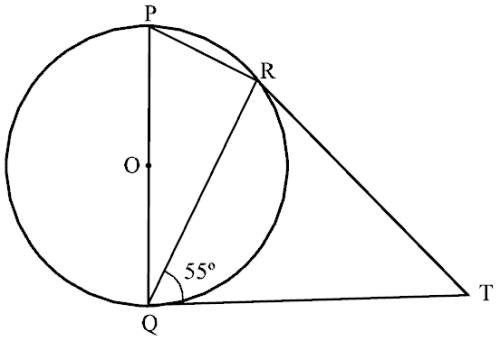




3) TR and TQ are tangents to the circle.

a) Explain why angle PQR = 35°

b) Find the size angle PRT and give reasons.



4) a) John places £12000 in a bank which pays 4.2% compound interest per year. How much interest does he earn if he leaves the money in the bank for 3 years?

b) Sue buys a new car for £8500. Its annual rate of depreciation is 22% per year. How much is it worth after 5 years?

5) The table shows the number of hot dogs that Peter sells over a six week period.

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
235	294	360	258	310	378

a) Work out the 3-week moving averages for this information.

b) Work out the 4-week moving averages for this information.

6) Factorise and solve the following equations:

a) $x^2 + 3x - 10 = 0$

b) $x^2 + 6x + 8 = 0$

c) $6x^2 + 7x - 3 = 0$

d) $x^2 - 7x + 10 = 0$

7) a) $2\frac{3}{5} + \frac{1}{4}$. b) $1\frac{1}{6} + \frac{2}{5}$

c) $2\frac{1}{2} \times \frac{1}{3}$ d) $2\frac{2}{5} \div 1\frac{1}{4}$

8) a) Factorise (i) $y^2 - 49$

(ii) $25x^2 - 36$

b) Simplify $\frac{4b^2 - 49a^2}{6b + 21a}$

c) Solve $9y^2 = 100$

9) a) If a straight line is parallel to $y = 3x - 2$ and goes through (1, 7).
What is it equation?

b) A straight line goes through points to (1, 5) and (2, 9).
What is it equation?

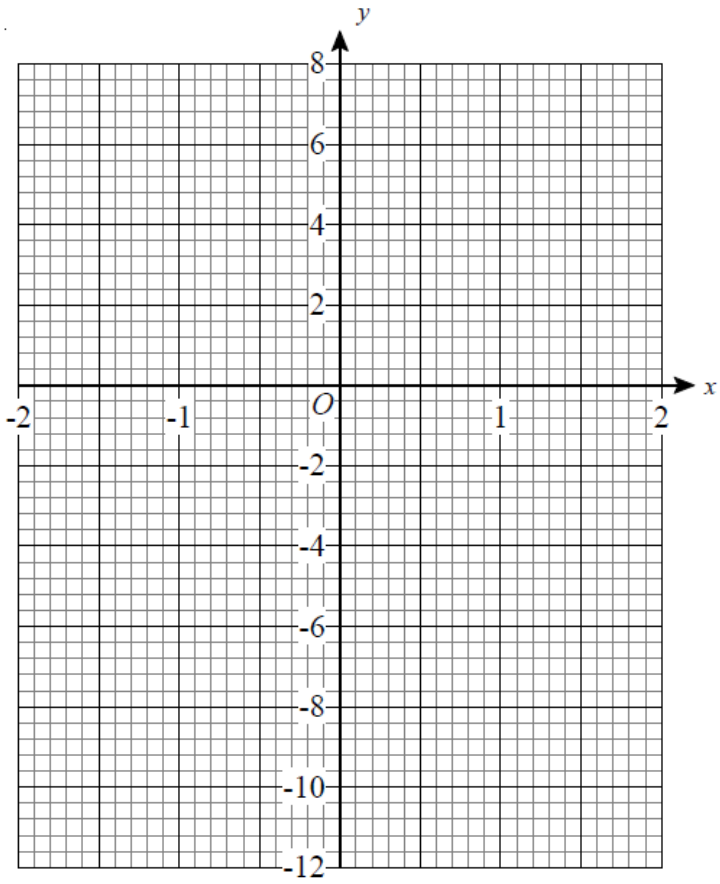
10) A, B and C are all towns. A is 7.8km due east of B. B is 12km due south of C.

Calculate the bearing of A from C. Give your answer correct to 1 decimal place.

11) a) Complete this table of values for $y = x^3 + x - 2$

x	-2	-1	0	1	2
y		-4			

b) On the grid draw the graph of $y = x^3 + x - 2$



c) Use the graph to find the value of x when $y = 4$

12) Work out the following, giving you answer in standard form.

a) $(7 \times 10^4) \times (9 \times 10^6)$

b) $(8 \times 10^7) \div (2 \times 10^5)$