One of these answers is wrong.   If you find it, contact me with the question number and correct answer.
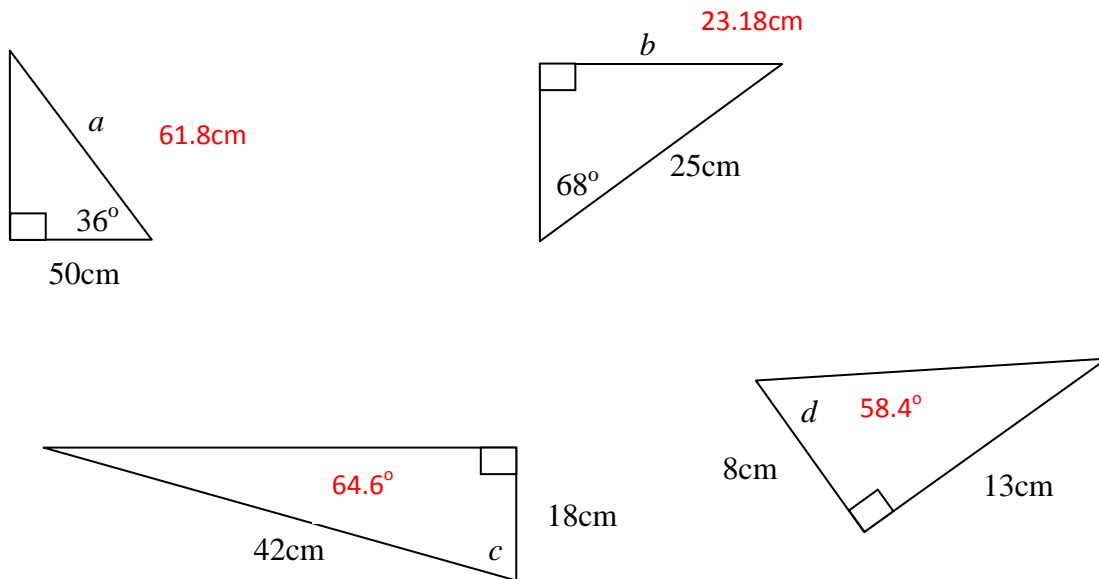**A calculator may be used except for question 7.**

1)   Solve these two simultaneous equations:

$2t + 3s = 6$ $s = -2$

$3t - 2s = 22$ $t = 6$

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

23.18cm
b

a **61.8cm**

25cm

68°

36°

50cm

64.6°

18cm

42cm c

d **58.4°**

8cm

13cm

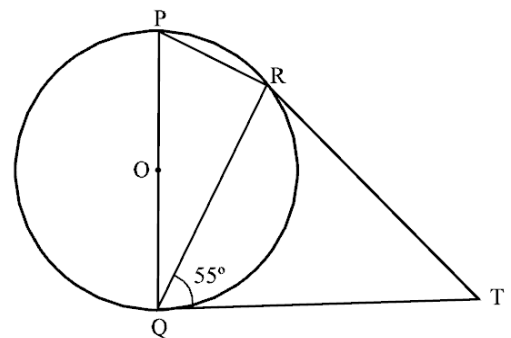3)   TR and TQ are tangents to the circle.

a)   Explain why angle PQR = 35°
PQT = 90° (tangent meets radius at 90°)
So PQR = 90° − 55° = 35°
b)   Find the size angle PRT and give reasons.
PRQ = 90° (angle in semicircle is 90°).
TRQ = 55° (isosceles triangle). PRT = 90° + 55° = 145°

P
R
O
55°
Q
T

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?
£1576.39

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?
£2454.10

One of these answers is wrong. If you find it, contact me with the question number and correct answer.

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.
            296.3, 304, 309.3, 315.3

   b)   Work out the 4-week moving averages for this information.
            286.75, 305.5, 326.5

6)   Factorise and solve the following equations:

   a) $x^2 + 3x - 10 = 0$ $(x + 5)(x - 2)$ $x = -5$ or $+2$

   b) $x^2 + 6x + 8 = 0$ $(x + 2)(x + 4)$ $x = -2$ or -4

   c) $6x^2 + 7x - 3 = 0$ $(2x + 3)(3x - 1)$ $x = -1.5$ or $0.\dot{3}$

   d) $x^2 - 7x + 10 = 0$ $(x - 5)(x - 2)$ $x = 5$ or 2

7)   a) $2\frac{3}{5} + \frac{1}{4}.$ $2\frac{13}{20}$ b) $1\frac{1}{6} + \frac{2}{5}$ $1\frac{17}{30}$

   c) $2\frac{1}{2} \times \frac{1}{3}$ $\frac{5}{6}$ d) $2\frac{2}{5} \div 1\frac{1}{4}$ $1\frac{23}{25}$

8)   a)   Factorise   (i) $y^2 - 49$ $(y - 7)(y + 7)$

                              (ii) $25x^2 - 36$ $(5x - 6)(5x + 6)$

   b)   Simplify $\frac{4b^2 - 49a^2}{6b + 21a}$ $\frac{2b - 7a}{3}$

   c)   Solve $9y^2 = 100$ $(3x - 10)(3x + 10) = 0$ $x = 3.\dot{3}$ or $-3.\dot{3}$

9)   a)   If a straight line is parallel to $y = 3x - 2$ and goes through (1, 7).
                  What is it equation? $y = 3x + 4$

   b)   A straight line goes through points to (1, 5) and (2, 9).
            What is it equation? $y = 4x + 1$

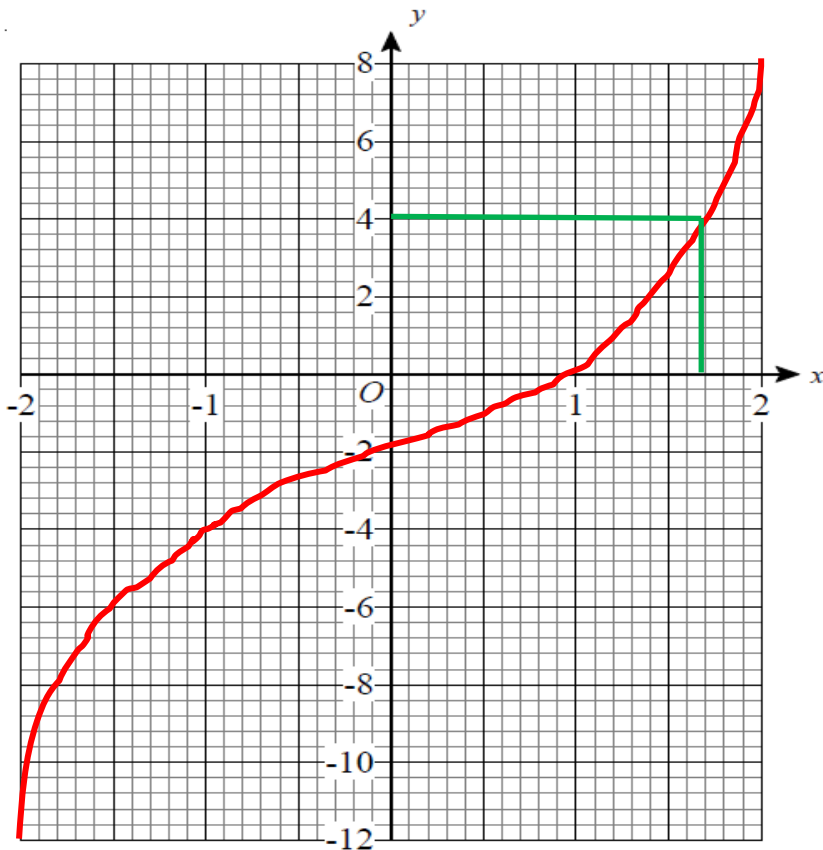10)   A, B and C are all towns. A is 7.8km due east of B. B is 12km due south of C.

Calculate the bearing of A from C. Give your answer correct to 1 decimal place.
147.0°

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

x	-2	-1	0	1	2
y	-8	-4	-2	0	8

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

c)   Use the graph to find the value of x when $y = 4$ 1.6 or 1.7

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

a) $(7 \times 10^4) \times (9 \times 10^6)$ 6.3×10^{11}

b) $(8 \times 10^7) \div (2 \times 10^5)$ 4×10^2