1.   Without a calculator, evaluate

   (a) $2\frac{1}{2}+3\frac{3}{5}$ (b) $2\frac{2}{3}\times1\frac{7}{8}$ (c) $5\frac{1}{3}\div2\frac{2}{3}$

2.   (a)   The price of an article, including a profit of 12% of the cost price, is £140. Find the cost price.
   (b)   In a sale, the price of an article is reduced by 20%. If the selling price is £424. calculate the original price.

3.   Solve these inequalities.

   (a) $3x+2\ 1+x\ \leq22$ (b) $5\ 1-2x\ >3x-21$

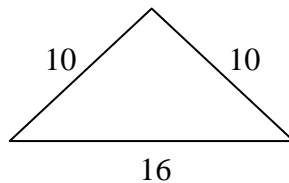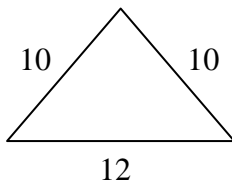4.   Solve these equations.

   (a) $\frac{1}{2}x+4=17$ (b) $\frac{x}{5}-1=5$

5.   For this set of values find a formula for y in terms of x.

x	0	1	2	3	4
y	3	5	7	9	11

6.   A circle is inscribed within a square of side 12cm. What is the circumference of the circle?

7.   Which of these triangles has the greater area? Show all working.

8.   A regular hexagon has sides of length 8 units.
   Calculate its area.
   [It will help to draw a sketch and divide the hexagon into six congruent equilateral triangles.]

9.   A manufacturer claims that his breakfast cereal contains at least 25% fruit. A 750g packet of the cereal is checked and found to contain 195g of fruit. Is the claim true?

10.   A painter mixes blue paint and yellow paint in the ratio $3:5$ in order to make green paint.
   He has 12 litres of blue paint and 22 litres of yellow paint.
   What is the maximum amount of green paint that he can mix?

11. (a) How many millilitres are there in 1 litre?

    (b) There are 5×10^9 red blood cells in 1 millilitre of blood.
The average person has $5 \cdot 8$ litres of blood.
How many red blood cells does the average person have in their blood?
Give your answer in scientific notation.

12. The mean of 12 numbers is 13. When an extra number is included in the set the mean increases to 14. What was the extra number?

13. The speed of light is approximately $2 \cdot 998 \times 10^5$ km/sec. Light from the sun takes 8×10^2 sec to reach a certain asteroid. How far is the asteroid from the sun?

14. The hypotenuse of an isosceles right-angled triangle measures 24cm.
Calculate the perimeter of the triangle.