1. [2points] Write the number in order of size with the **smallest** first.

$$\sqrt{10} \qquad 3.14 \qquad \frac{22}{7} \qquad \pi$$

2. [3points] Expand the brackets and simplify completely
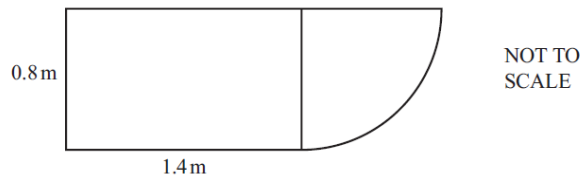$$p(4p + 5r) + 2r(6p + r).$$

3. [2points] Michael changed \$600 into pounds when the exchange rate was
   1 = \$2.40.

   He later changed all the pounds back into dollars when the exchange rate was
   1 = \$2.60.

   How many dollars did he receive?

4. [2points] Write down the equation of the line, parallel to $y = 4x + 1$, which passes through the point $(0, -3)$.

5. [3points] The top of a desk is made from a rectangle and a quarter circle.
   The rectangle measures 0.8m by 1.4m.

Calculate the surface area of the top of the desk.

6. [3points] A cyclist left Melbourne on Wednesday 21 May at 09:45 to travel to Sydney.
   The journey took 97 hours.

   Write down the day, date and time that the cyclist arrived in Sydney.

7. [3points] The diagram represents a rectangular gate measuring 1.5m by 4.5m.
   It is made from eight lengths of wood.

Calculate the total length of wood needed to make the gate.

8. [3points] Make d the subject of the formula
$$c = \frac{5d + 4w}{2w}.$$

9. [3points] Solve the simultaneous equations
$$\begin{cases} \dfrac{2x + y}{2} = 7 \\ \dfrac{2x - y}{2} = 17 \end{cases}.$$

10. [2points] Simplify
$$3^2 q^{-3} \div 2^3 q^{-2}.$$

11. [3points] Calculate the volume of a cylinder of radius 31**centimetres** and length 15**metres**.

   Give your answer in cubic metres.

12. [2points] Erica is tiling the floor of a rectangular room of length 3 metres and width 2.5 metres.

    She uses square tiles of side 25centimetres.

    Calculate how many tiles she will need altogether.
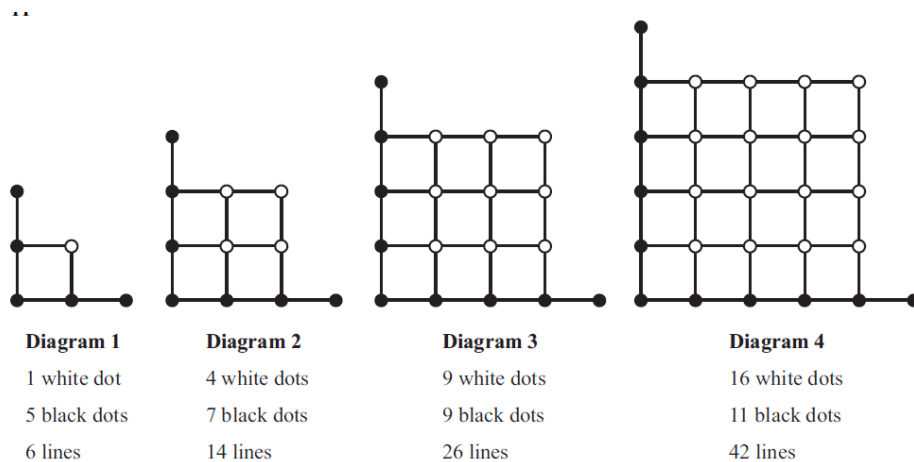
13. [2points] Solve the equation

$$\frac{5}{w} = \frac{3}{w+1}.$$

14. [2points] The population of a village is 2250.

    32% of the population are children.

    Calculate the number of children in the village.

15. The four diagrams below are the first four of a pattern.

Diagram 1	Diagram 2	Diagram 3	Diagram 4
1 white dot	4 white dots	9 white dots	16 white dots
5 black dots	7 black dots	9 black dots	11 black dots
6 lines	14 lines	26 lines	42 lines

a) [3points] State the information about the number of dots and lines in Diagram 8.

b) [1point] Find the number of lines in Diagram 100.

Dictionary:

cylinder – walec

exchange rate – kurs wymiany walut

expand the brackets – uprość nawiasy

in order – w porządku

length – długość

parallel – równoległy

radius – promień

rectangle – prostokąt

simplify – uprość

simultaneous equations – układ równań

smallest – najmniejszy

surface area – pole powierzchni

volume – objętość

width – szerokość