Revision Booklet 6

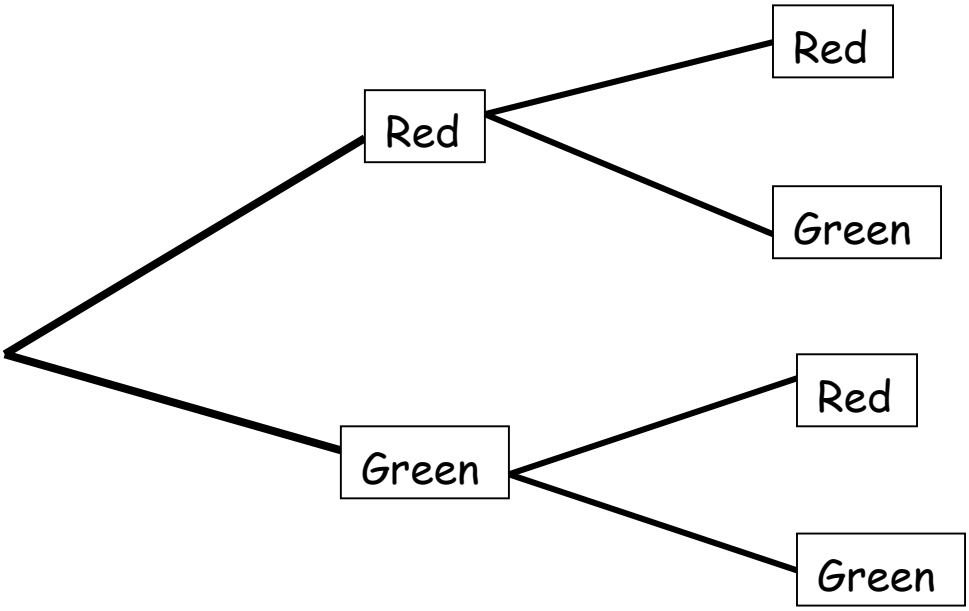
Topics

1. Probability Tree Diagrams
2. IQR and Box Plots
3. Histograms
4. Trigonometry
5. Functions
6. Ratios in Similar Shapes
7. Vectors

Name _____

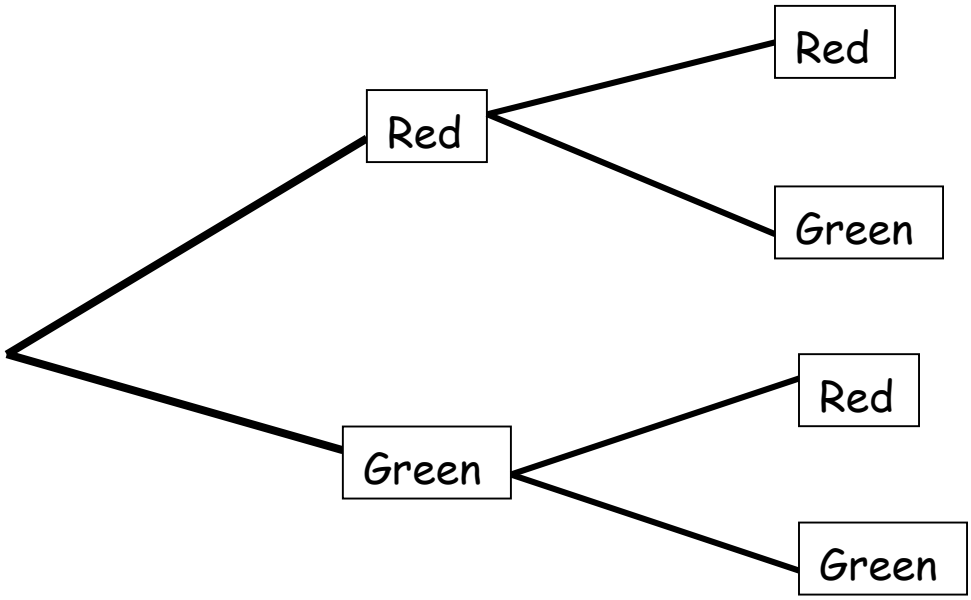
1. A bag contains 4 red and 6 green beads. A bead is taken from the bag and its colour is recorded and then the bead is replaced. A second bead is then taken from the bag and its colour noted.

a. Put the probabilities onto the tree diagram
b. Calculate the probability of obtaining:
    i) Two red beads
    ii) Two green beads
    iii) A green and a red bead obtained in any order.



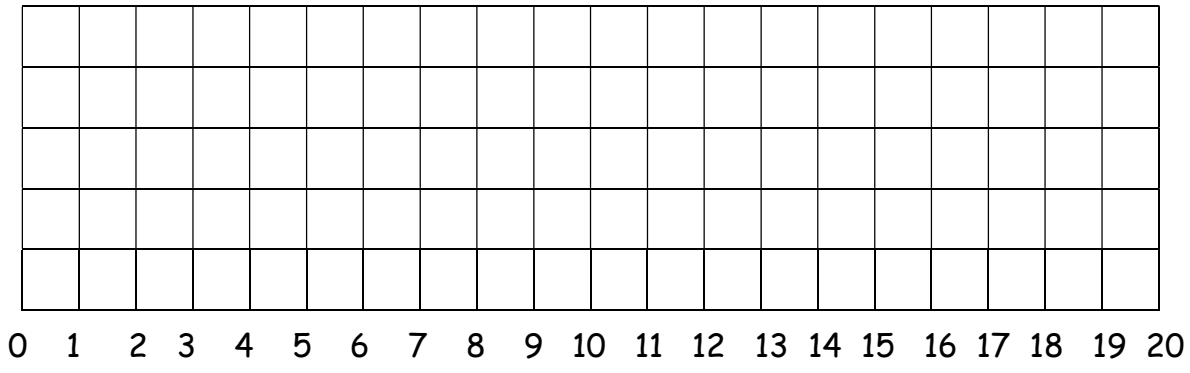
2. Using the same bag as in question 1, two beads are taken but this time, the beads are **not replaced**. Complete the tree diagram on the next page to show the probabilities and then use it to calculate:

    i) Two red beads
    ii) Two green beads
    iii) A green and a red bead obtained in any order.



3. Calculate the median, lower quartile, upper quartile and the interquartile range of: 4, 5, 6, 7, 7, 8, 8, 8, 9, 10, 10, 10, 10, 10, 11, 11, 11, 12, 12, 13, 13, 14, 15, 15, 16

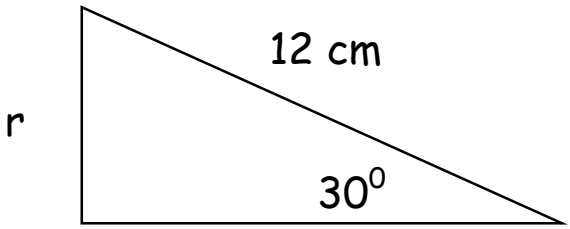
4. Using the grid below, draw a box plot to show the all the information (median upper and lower quartiles, etc,) for the data in question 3.

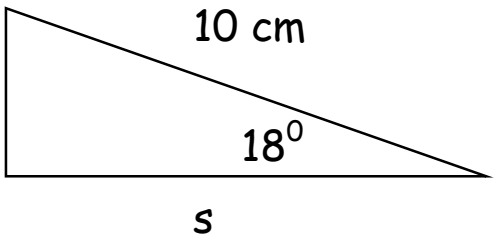


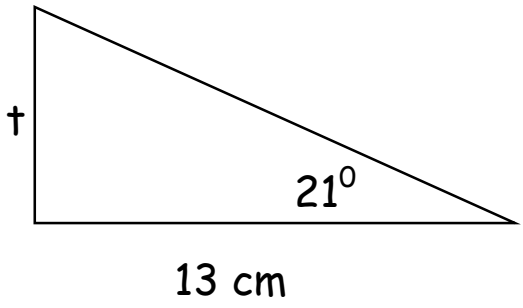
5. Mrs Jones runs a hot food stall. She decides to keep a record of her sales during a 12 hour period at a pop festival. Explain why this information might appear confusing on a bar chart. Put the information shown in the table below onto a histogram.

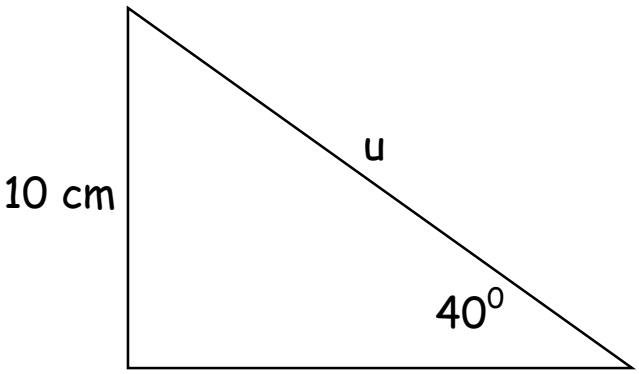
Hours Open	Money Taken	
$0 < t \leq 2$	20	
$2 < t \leq 3$	12	
$3 < t \leq 6$	15	
$6 < t \leq 7$	10	
$7 < t \leq 9$	24	
$9 < t \leq 12$	12	

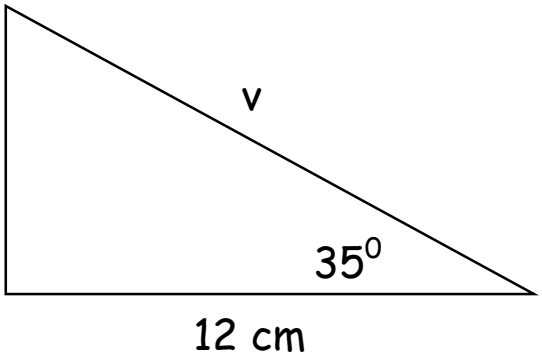
6. Calculate the unknown lengths of each of the right angle triangles shown below. Use Pythagoras to check your answer.

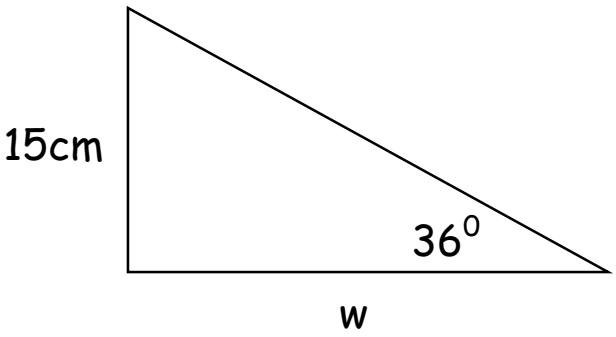




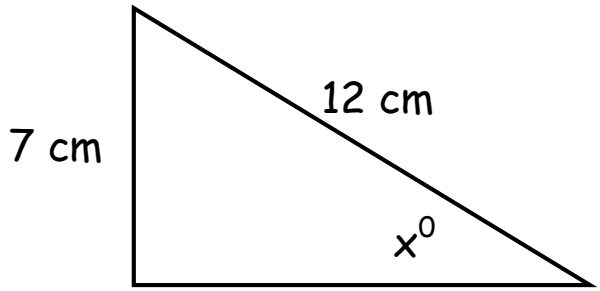


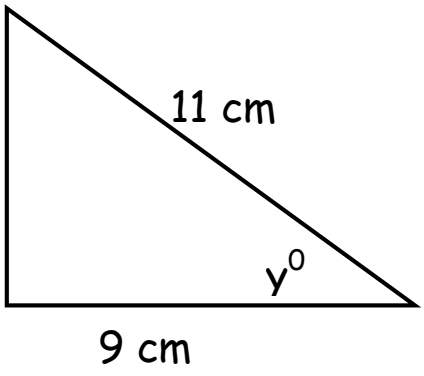


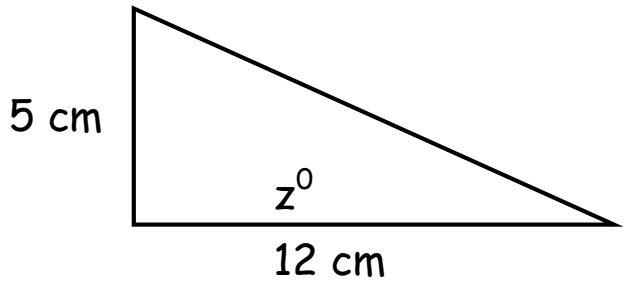




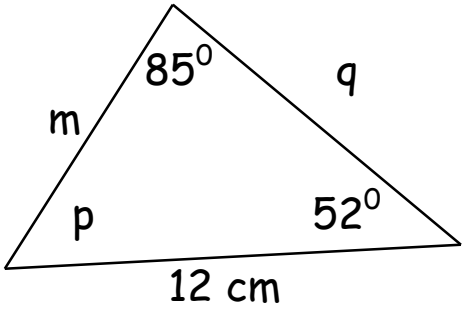
7. Calculate the unknown angle in each of these right angle triangles.



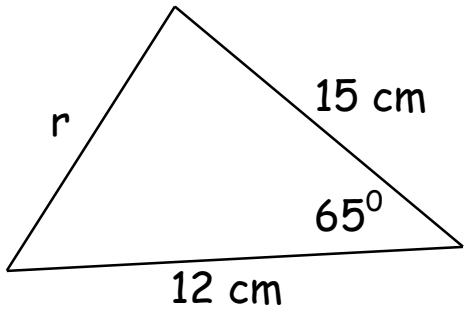




8. Calculate the unknown angle and sides



9. Calculate the unknown side



10. If $f(x) = 2x + 1$ and $g(x) = x^2 - 1$, calculate:

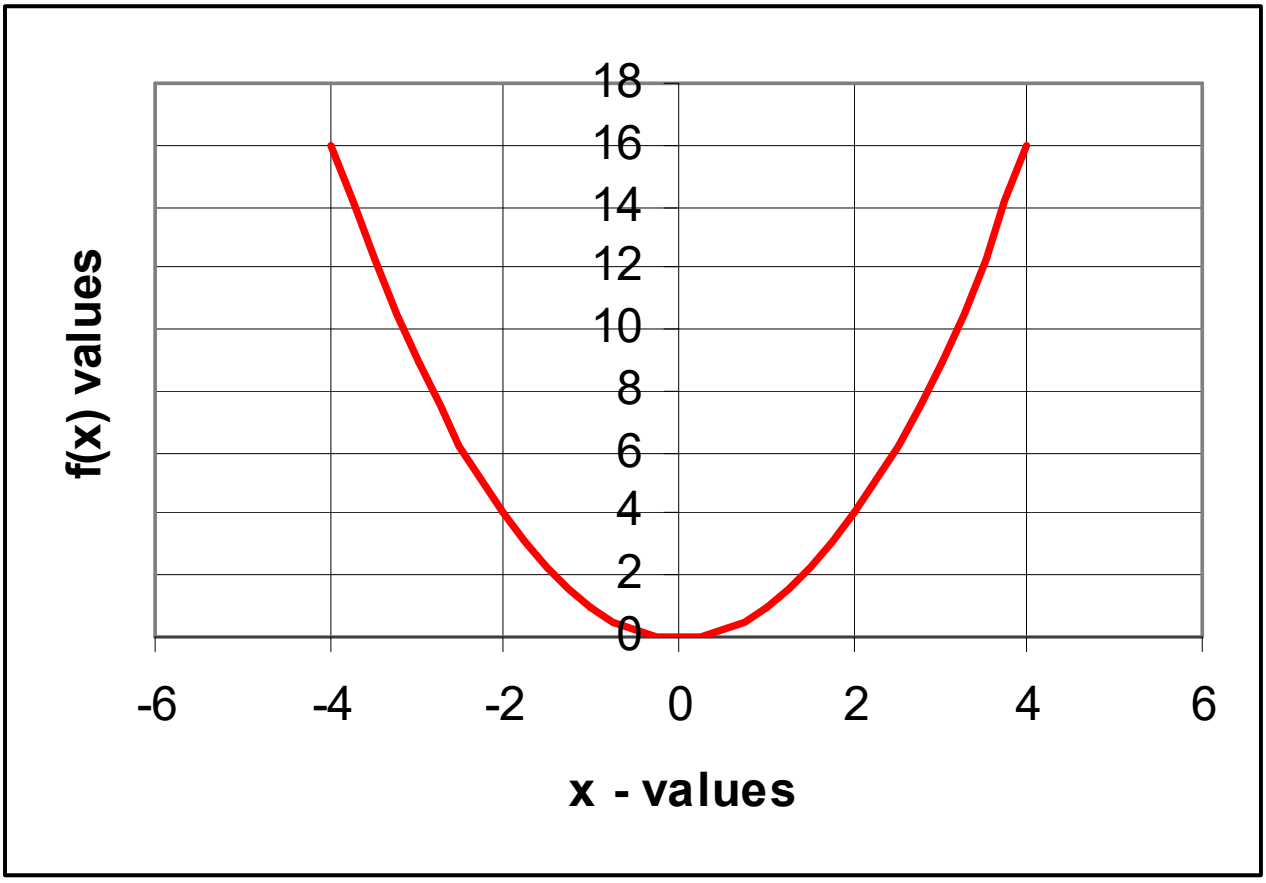
a. $f(5)$ b. $g(5)$ c. $fg(3)$ d. $gf(3)$

11. If $h(x) = 4x - 1$ and $k(x) = 2x + 3$ find expressions for:

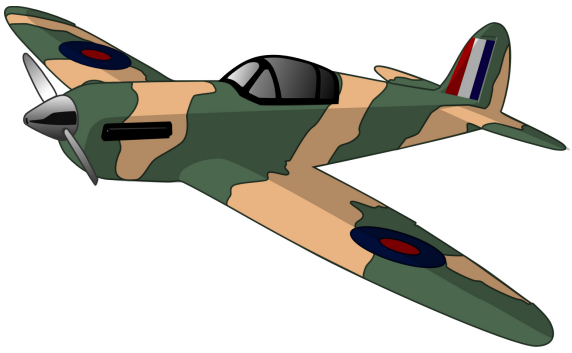
a. $h^{-1}(x)$ b. $k^{-1}(x)$ c. $hk(x)$ d. $kh(x)$

12. Here is the graph of $f(x) = x^2$. Use it as a guide to sketch the graphs of the following:

a. $g(x) = f(x - 2)^2$ b. $h(x) = f(x) + 4$ c. $k(x) = 2f(x)$



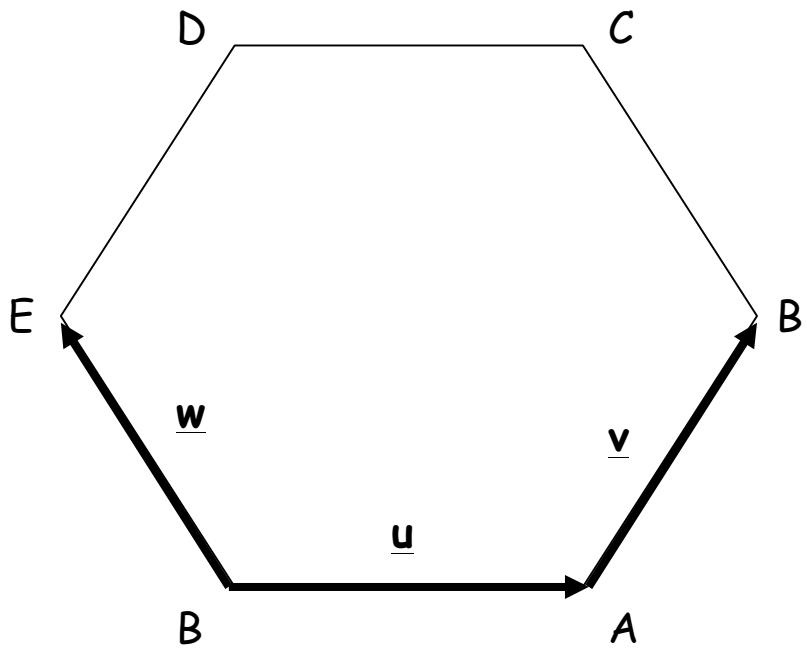
13. The real plane's length is 6 metres the model's length is 30 cm.



Calculate

(a) The scale factor of the model to the real plane
(b) The surface area ratio between the model and the real plane
(c) The volume ratio between the model and real plane

14.



The vectors **u** **v** and **w** lie on the regular hexagon as shown. Use these to describe the vectors:

(i) BC

(ii) AD

(iii) AB

(iv) EB

(v) DB