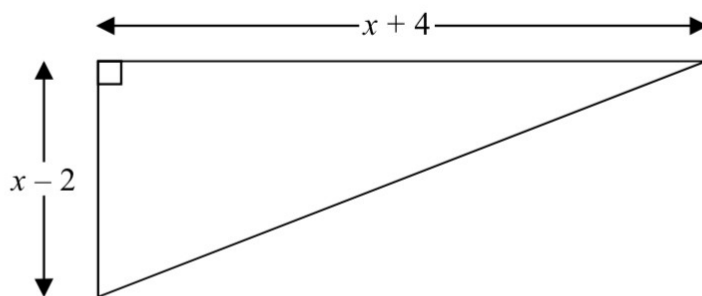**Question 1 (4 Marks)**

The diagram shows a right-angled triangle.

All the measurements are in centimetres.

The area of the triangle is 27.5 cm²

Work out the length of the shortest side of the triangle.
You must show all your working.

SIMPLEX MATHS
BIG EXAMS MADE SIMPLE

Question 2 (4 Marks)

There are only 3 red counters and 5 yellow counters in a bag.

Jude takes at random 3 counters from the bag.

Work out the probability that he takes exactly one red counter.

Question 3 (4 Marks)

Shirley wants to find an estimate for the number of bees in her hive.

On Monday she catches 90 of the bees.
She puts a mark on each bee and returns them to her hive.

On Tuesday she catches 120 of the bees.
She finds that 20 of these bees have been marked.

(a) Work out an estimate for the total number of bees in her hive.

....

(3)

Shirley assumes that none of the marks had rubbed off between Monday and Tuesday.

(b) If Shirley's assumption is wrong, explain what effect this would have on your answer to part (a).

....

....

....

(1)

Question 4 (3 Marks)

Show that $(x + 1)(x + 2)(x + 3)$ can be written in the form $ax^3 + bx^2 + cx + d$ where a, b, c and d are positive integers.

(Total 15 Marks)