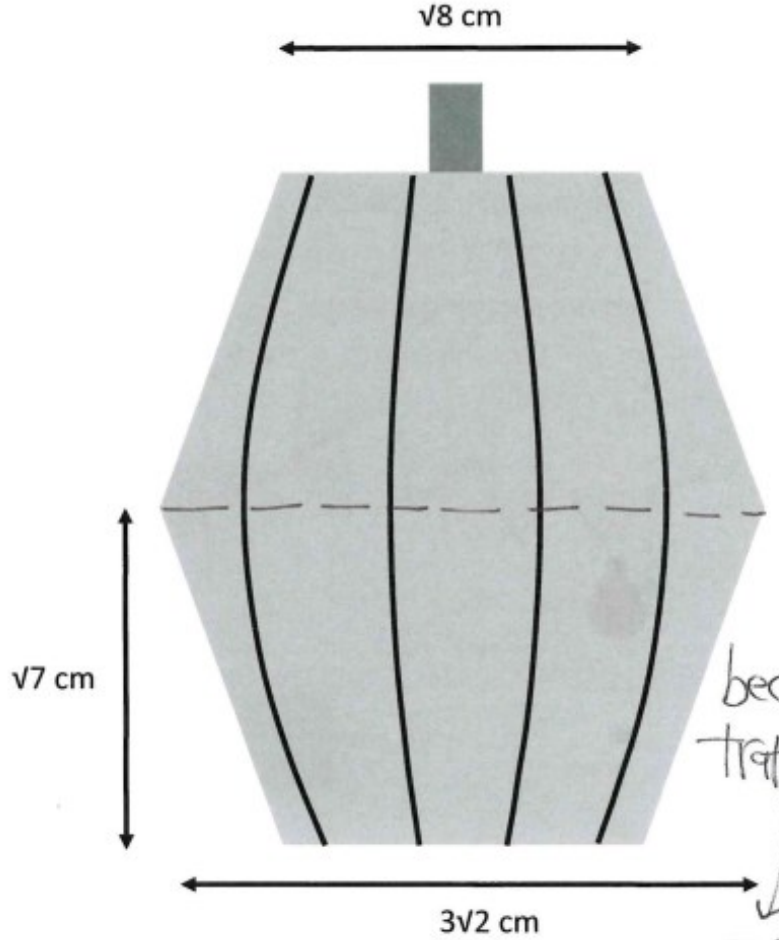
Halloween Surds!

Answers

Not drawn to scale!

The pumpkin is made of two congruent trapezia, one on top of the other.

Work out the area of the pumpkin, not including the stalk!



because 2 trapezia!

Area of 1 trapezium

$= \left(\frac{\sqrt{8} + 3\sqrt{2}}{2}\right) \times \sqrt{7}$

$= \left(\frac{2\sqrt{2} + 3\sqrt{2}}{2}\right) \times \sqrt{7}$

$= \frac{5\sqrt{2}}{2} \times \sqrt{7} = \frac{5\sqrt{14}}{2}$

Total: $5\sqrt{14}\ cm^2$

Not drawn to scale!

The witch's broomstick is made of a rectangle and a trapezium.

Work out the area of the broomstick!

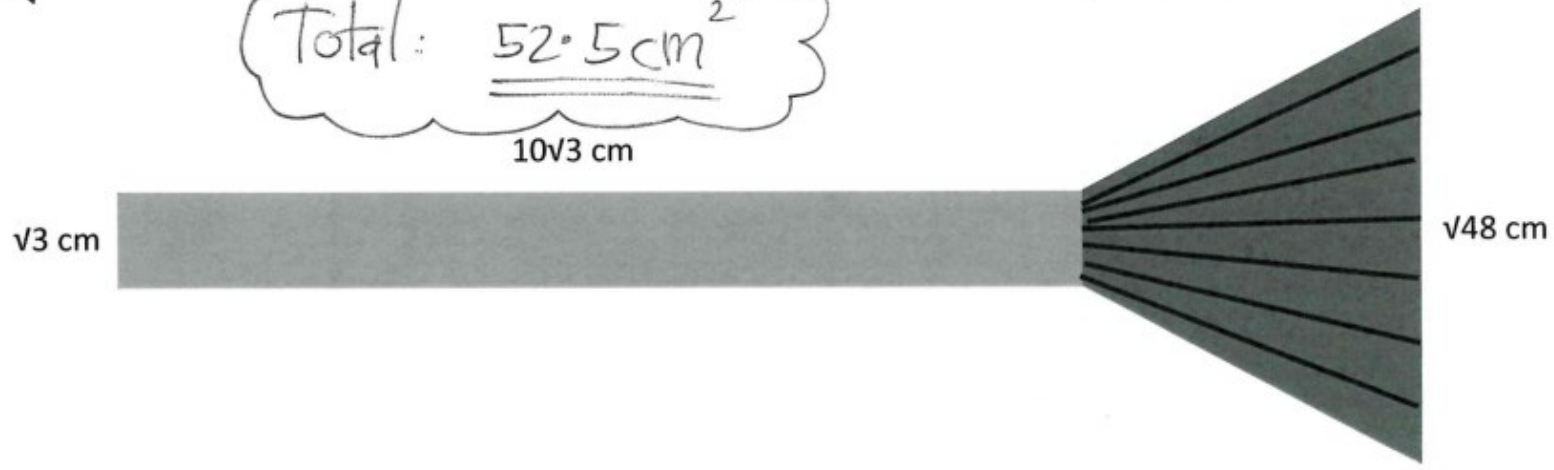
Rectangle: $\sqrt{3} \times 10\sqrt{3} = 30\text{cm}^2$

Trapezium: $\frac{\sqrt{48} + \sqrt{3}}{2} \times \sqrt{27}$

$= \frac{\sqrt{16} \times \sqrt{3} + \sqrt{3}}{2} \times \sqrt{9} \times \sqrt{3}$

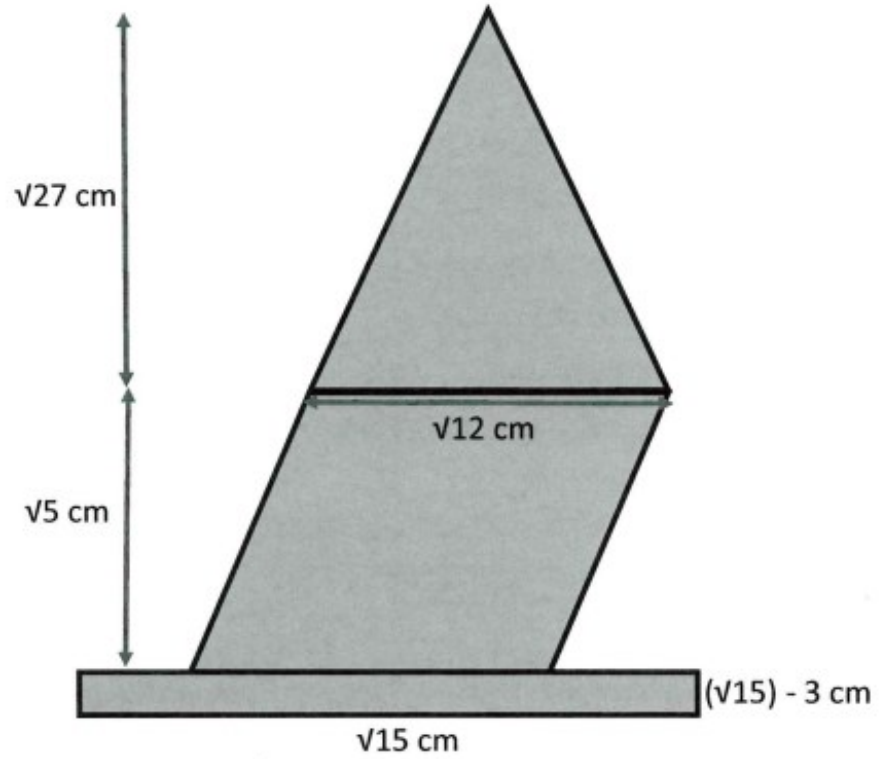
$= \frac{5\sqrt{3}}{2} \times 3\sqrt{3} = \frac{45}{2} = 22.5\ \text{cm}^2$

Total: 52.5cm^2



Not drawn to scale!

The witch's hat is made of a rectangle, a parallel-ogram and a triangle. Work out the area!



Rectangle: $\sqrt{15}(\sqrt{15}-3)$

$= 15 - 3\sqrt{15}$ cm²

Parallelogram: $\sqrt{12} \times \sqrt{5} = \sqrt{60}$

$= \sqrt{4} \times \sqrt{15}$

$= 2\sqrt{15}$ cm²

Triangle: $\frac{\sqrt{12} \times \sqrt{27}}{2}$

$= \frac{2\sqrt{3} \times 3\sqrt{3}}{2}$ $= 9$ cm²

Total: $15 - 3\sqrt{15} + 2\sqrt{15} + 9$

$= 24 - \sqrt{15}$ cm²