Question 1: Find the area of each hexagon

(a) $93.6 \, cm^2$

5.2cm

6cm

(b) $259.8 \, cm^2$

17.32cm

10cm

(c) $41.5692 \, cm^2$

6.9282cm

4

8cm
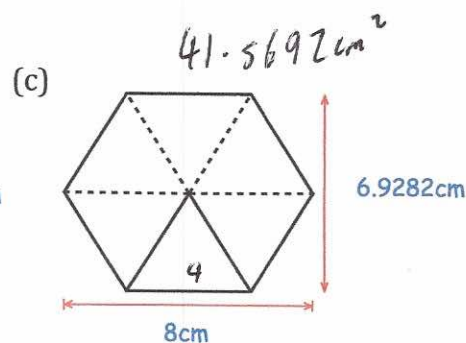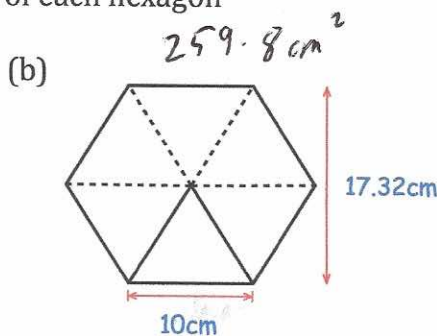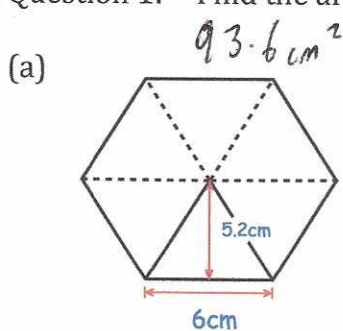
Question 2: Find the area of each hexagon

(a) $1039.23 \, cm^2$

20cm

(b) $210.44 \, cm^2$

9cm

(c) $127.3 \, km^2$

7

14cm
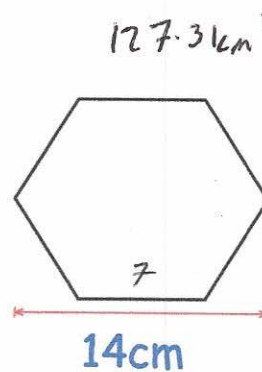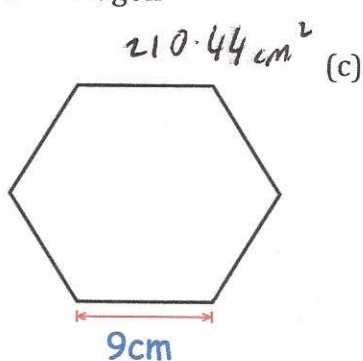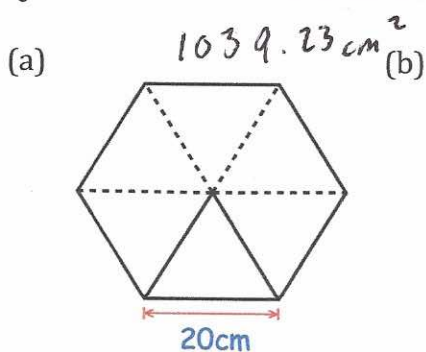
**Question 3:** Calculate the area of a regular hexagon with side length 13cm. $439.07 \, cm^2$

Question 4: Calculate the area of a regular hexagon with side length 30cm. $2338.27 \, cm^2$

Question 5: Find the side length of each hexagon below

(a) Area = 100cm²

x $\quad 6.2 \, cm$

(b) Area = 480cm²

x $\quad 13.6 \, cm$

(c) Area = 1m²

x $\quad 0.62 \, m$
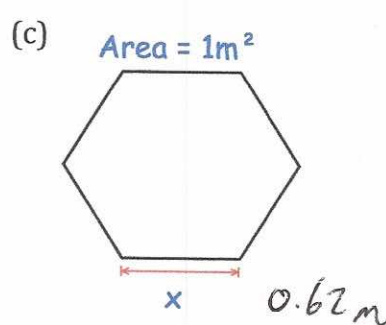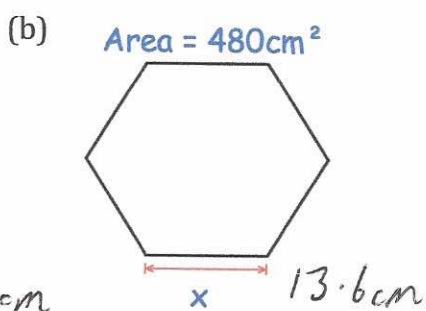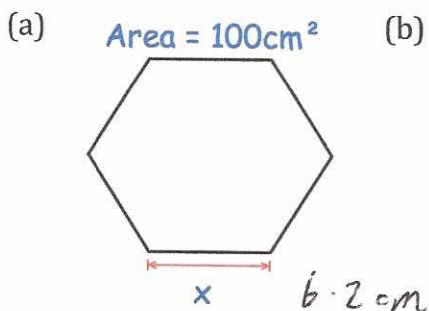
Extension: A formula for the area of a regular hexagon with side length x is given below. Prove this formula.

$$Area = \frac{3}{2}\sqrt{3} \, x^2$$

x

h $\quad x$

$\frac{1}{2}x$
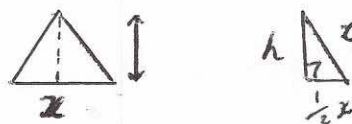
$h = \sqrt{x^2 - \left(\frac{1}{2}x\right)^2}$

$h = \sqrt{\frac{3}{4}x^2} = \frac{\sqrt{3}}{2}x$

Area of triangle: $\frac{1}{2} \times x \times \frac{\sqrt{3}}{2}x = \frac{\sqrt{3}}{4}x^2$

$6 \times \frac{\sqrt{3}}{4}x^2$

$= \frac{3}{2}\sqrt{3} \, x^2 \quad$ QED