Ex 20 Surds

1. Simplify the following:

(a) $\sqrt{20}$ (b) $\sqrt{54}$ (c) $\sqrt{700}$ (d) $\sqrt{6400}$

(e) $\sqrt{2} \times \sqrt{98}$ (f) $\sqrt{2} \times \sqrt{6}$ (g) $\frac{\sqrt{96}}{\sqrt{3}}$ (h) $\sqrt{\frac{8}{27}}$

2. Expand the brackets:

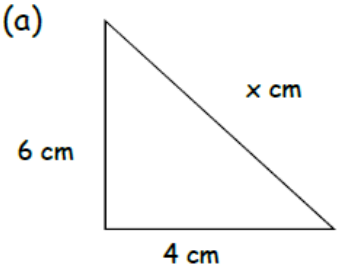
(a) $(1 + \sqrt{3})(1 + \sqrt{3})$ (b) $(1 + \sqrt{5})(2 + \sqrt{5})$ (c) $\sqrt{2}(5 + \sqrt{8})$

3. Rationalise the denominator:

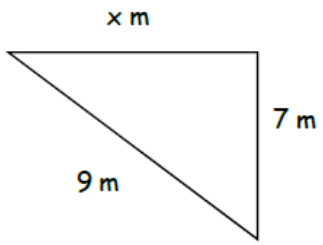
(a) $\frac{3}{\sqrt{2}}$ (b) $\frac{5}{3\sqrt{7}}$ (c) $\frac{2}{3-\sqrt{5}}$ (d) $\frac{\sqrt{2}}{6+\sqrt{2}}$

4. Calculate the missing sides in each of the following triangles. Leave your answer in surd form.

(a)



(b)



5. A rectangle has sides measuring $(2 + \sqrt{2})$cm and $(2 - \sqrt{2})$ cm. Calculate the exact value of:

a) The rectangles area

b) The length of the diagonal.