

Full Name:

Date:

Short Assessment 1 (Version 2)

Time Allowed: 15 minutes

Total Marks: 18

1. Simplify the following expressions leaving your answers in surd form.

$$\begin{aligned} \text{(a)} \quad \sqrt{32} &= \sqrt{16} \times \sqrt{2} \\ &= 4\sqrt{2} // \end{aligned}$$

(1 marks)

$$\begin{aligned} \text{(b)} \quad 4\sqrt{75} &= 4 \times \sqrt{25} \times \sqrt{3} \\ &= 20\sqrt{3} // \end{aligned}$$

(2 marks)

$$\text{(c)} \quad 12\sqrt{20} + \sqrt{45} - 2\sqrt{125}$$

$$\begin{aligned} &= 12 \times \sqrt{4} \times \sqrt{5} + \sqrt{9} \times \sqrt{5} - 2 \times \sqrt{25} \times \sqrt{5} \\ &= 24\sqrt{5} + 3\sqrt{5} - 10\sqrt{5} \\ &= 17\sqrt{5} // \end{aligned}$$

(3 marks)

2. Expand the brackets and simplify the following expressions leaving your answers in surd form.

$$\begin{aligned} \text{(a)} \quad (2 - \sqrt{5})(4 - \sqrt{5}) &= 8 - 2\sqrt{5} - 4\sqrt{5} + 5 \\ &= 13 - 6\sqrt{5} // \end{aligned}$$

(3 marks)

$$\begin{aligned} \text{(b)} \quad (5 - 2\sqrt{3})(4 + 5\sqrt{3}) &= 20 + 25\sqrt{3} - 8\sqrt{3} - 10 \times 3 \\ &= 20 + 17\sqrt{3} - 30 \\ &= \underline{\underline{-10 + 17\sqrt{3}}} \end{aligned}$$

(3 marks)

3. Rationalise the denominators.

$$\begin{aligned} \text{(a)} \quad \frac{3}{\sqrt{5}} &= \frac{3 \times \sqrt{5}}{\sqrt{5} \times \sqrt{5}} \\ &= \frac{3\sqrt{5}}{5} // \end{aligned}$$

(1 marks)

$$\begin{aligned} \text{(b)} \quad \frac{3}{5\sqrt{7}} &= \frac{3 \times \sqrt{7}}{5\sqrt{7} \times \sqrt{7}} \\ &= \frac{3\sqrt{7}}{35} // \end{aligned}$$

(2 marks)

$$\begin{aligned} \text{(c)} \quad \frac{2}{4-\sqrt{3}} &= \frac{2(4+\sqrt{3})}{(4-\sqrt{3})(4+\sqrt{3})} \\ &= \frac{2(4+\sqrt{3})}{16 + 4\sqrt{3} - 4\sqrt{3} - 3} \\ &= \frac{2(4+\sqrt{3})}{13} // \end{aligned}$$

(3 marks)

- End of Test -