

Full Name: .....

Date: .....

Short Assessment 1 (Version 1)

Time Allowed: 15 minutes

Total Marks: 18

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

$$\begin{aligned} \text{(a) } \sqrt{50} &= \sqrt{25} \times \sqrt{2} \\ &= \underline{\underline{5\sqrt{2}}} \end{aligned}$$

(1 marks)

$$\begin{aligned} \text{(b) } 6\sqrt{45} &= 6 \times \sqrt{9} \times \sqrt{5} \\ &= \underline{\underline{18\sqrt{5}}} \end{aligned}$$

(2 marks)

$$\begin{aligned} \text{(c) } 10\sqrt{27} - 2\sqrt{12} + \sqrt{75} \\ &= 10 \times \sqrt{9} \times \sqrt{3} - 2 \times \sqrt{4} \times \sqrt{3} + \sqrt{25} \times \sqrt{3} \\ &= 30\sqrt{3} - 4\sqrt{3} + 5\sqrt{3} \\ &= \underline{\underline{31\sqrt{3}}} \end{aligned}$$

(3 marks)

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

$$\begin{aligned} \text{(a) } (3 + \sqrt{2})(7 - \sqrt{2}) &= 21 - 3\sqrt{2} + 7\sqrt{2} - 2 \\ &= \underline{\underline{19 + 4\sqrt{2}}} \end{aligned}$$

(3 marks)

$$\begin{aligned} \text{(b) } (2 - 3\sqrt{5})(7 - 2\sqrt{5}) &= 14 - 4\sqrt{5} - 21\sqrt{5} + 6 \times 5 \\ &= 14 - 25\sqrt{5} + 30 \\ &= \underline{\underline{44 - 25\sqrt{5}}} \end{aligned}$$

(3 marks)

3. Rationalise the denominators.

$$\begin{aligned} \text{(a)} \quad \frac{2}{\sqrt{7}} &= \frac{2 \times \sqrt{7}}{\sqrt{7} \times \sqrt{7}} \\ &= \frac{2\sqrt{7}}{7} // \end{aligned}$$

(1 marks)

$$\begin{aligned} \text{(b)} \quad \frac{4}{3\sqrt{5}} &= \frac{4 \times \sqrt{5}}{3\sqrt{5} \times \sqrt{5}} \\ &= \frac{4\sqrt{5}}{15} // \end{aligned}$$

(2 marks)

$$\begin{aligned} \text{(c)} \quad \frac{3}{5+\sqrt{2}} &= \frac{3(5-\sqrt{2})}{(5+\sqrt{2})(5-\sqrt{2})} \\ &= \frac{3(5-\sqrt{2})}{25-5\sqrt{2}+5\sqrt{2}-2} \\ &= \frac{3(5-\sqrt{2})}{23} // \end{aligned}$$

(3 marks)

---

- End of Test -