

Totally Hip & Rad

Part 1

$$\begin{aligned} a) \quad & \sqrt{16} - \sqrt{49} \\ & = 4 - 7 \\ & = -3 \quad \checkmark \end{aligned}$$

$$\begin{aligned} b) \quad & 2\sqrt{25} - 3\sqrt{36} \\ & = 2(5) - 3(6) \\ & = 10 - 18 \\ & = -8 \quad \checkmark \end{aligned}$$

$$\begin{aligned} c) \quad & \sqrt{\frac{9}{4}} - \sqrt{\frac{25}{16}} \\ & = \frac{3}{2} - \frac{5}{4} \\ & = \frac{1}{4} \quad \checkmark \end{aligned}$$

Part 2

$$\begin{aligned} (a) \quad & \sqrt{48} \\ & = \sqrt{16} \sqrt{3} \\ & = 4\sqrt{3} \quad \checkmark \end{aligned}$$

$$\begin{aligned} (b) \quad & \sqrt{300} \\ & = \sqrt{100} \sqrt{3} \\ & = 10\sqrt{3} \quad \checkmark \end{aligned}$$

$$\begin{aligned} (c) \quad & \sqrt[7]{80} \\ & = \sqrt[7]{16} \sqrt[7]{5} \\ & = 2\sqrt[7]{5} \quad \checkmark \end{aligned}$$

$$\begin{aligned} (d) \quad & -3\sqrt[7]{2} \\ & = -3\sqrt[7]{36} \sqrt[7]{2} \\ & = -18\sqrt[7]{2} \quad \checkmark \end{aligned}$$

Part 3

$$\begin{aligned}(a) \quad & 2\sqrt{8} \times \sqrt{2} \\& = 4\sqrt{2} \times \sqrt{2} \\& = 8\end{aligned}$$

$$\begin{aligned}(b) \quad & 4\sqrt{8} \times 3\sqrt{6} \times 7\sqrt{3} \\& = 84\sqrt{44} \\& = 84 \times 12 \\& = 1008\end{aligned}$$

$$\begin{aligned}(c) \quad & -3\sqrt{98} - 5\sqrt{32} + \sqrt{8} \\& = -3\sqrt{49}\sqrt{2} - 5\sqrt{16}\sqrt{2} + \sqrt{4}\sqrt{2} \\& = -21\sqrt{2} - 20\sqrt{2} + 2\sqrt{2} \\& = -39\sqrt{2}\end{aligned}$$

$$\begin{aligned}(d) \quad & 5\sqrt{3} + 4\sqrt{18} - 14\sqrt{12} - \sqrt{72} \\& = 5\sqrt{3} + 4\sqrt{9}\sqrt{2} - 14\sqrt{4}\sqrt{3} - \sqrt{36}\sqrt{2} \\& = 5\sqrt{3} + 12\sqrt{2} - 28\sqrt{3} - 6\sqrt{2} \\& = 6\sqrt{2} - 23\sqrt{3}\end{aligned}$$

$$(e) \quad \tau_2(2\tau_{10} - 5\tau_6)$$

$$= 2\tau_{20} - 5\tau_2$$

$$= 2\tau_4\tau_5 - 5\tau_4\tau_3$$

$$= 4\tau_5 - 10\tau_3$$

$$(f) \quad (1-\tau_2)(3\tau_3 - 5\tau_8)$$

$$= 3\tau_3 - 5\tau_8 - 3\tau_6 + 5\tau_6$$

$$= 3\tau_3 - 5\tau_4\tau_2 - 3\tau_6 + 5(4)$$

$$= 3\tau_3 - 10\tau_2 - 3\tau_6 + 20$$

$$(g) \quad (4-6\tau_5)^2$$

$$= 16 - 48\tau_5 + 36(5)$$

$$= 196 - 48\tau_5$$