

Answers:

1. a) $4r\sqrt{2r}$ b) $15x^2y^2\sqrt[3]{3}$ c) $48x^2y^6\sqrt{2x}$
2. **A** $\frac{5\sqrt{2}+2\sqrt{5}}{10}$
3. a) $\sqrt{3}$ b) $-9\sqrt{2}$ c) $14\sqrt{5}$
d) $-5\sqrt{5} + 6\sqrt{3}$ e) $6\sqrt{6} - 4\sqrt{2}$ f) $30 - 60\sqrt{2}$
g) $-12\sqrt{10} - 40\sqrt{6}$ h) $1 + \sqrt{5}$ i) $18 + 10\sqrt{3}$
4. a) $-\sqrt{3}$ b) $\frac{7\sqrt{10}}{15}$ c) $\frac{5\sqrt{21}}{14}$
d) $6 + 3\sqrt{3}$ e) $\frac{12-\sqrt{6}}{46}$ f) $\frac{\sqrt{15}+\sqrt{10}}{5}$
5. a) $x = \frac{1}{16}; x \geq 0$ b) $x = \frac{34}{5}; x \geq -\frac{2}{5}$ c) $x = 9; x \leq 34$
d) $x = 4; x \leq 4$ e) $x = \frac{1}{2}; x \geq \frac{1}{4}$ f) $x = 8; x \geq -\frac{24}{5}$
g) $x = 10; x \leq 10$

6. Graph (I) - **A** $y = -\sqrt{x+4}$ Graph (II) - **E** $y = \sqrt{x-4} + 3$
Graph (III) - **D** $y = -2\sqrt{x} + 4$ Graph (IV) - **B** $y = 2\sqrt{x} - 3$

7. Graph (I) Domain : $\{x|x \geq -4, x \in R\}$
Range: $\{y|y \leq 0, y \in R\}$

- Graph (II) Domain : $\{x|x \geq 4, x \in R\}$
Range: $\{y|y \geq 3, y \in R\}$

- Graph (III) Domain : $\{x|x \geq 0, x \in R\}$
Range: $\{y|y \leq 4, y \in R\}$

- Graph (IV) Domain : $\{x|x \geq 0, x \in R\}$
Range: $\{y|y \geq -3, y \in R\}$

8. Graph (I) Reflection over the x-axis
Horizontal translation of 4 units to the left
- Graph (II) Horizontal translation of 4 units to the right
Vertical translation of 3 units up
- Graph (III) Reflection over the x-axis
Vertical stretch by a factor of 2
Vertical translation of 4 units up
- Graph (IV) Vertical stretch by a factor of 2
Vertical translation of 3 units down