

A2.A.15: Rationalizing Denominators 1: Rationalize denominators involving algebraic radical expressions

1 Simplify: $3\sqrt{\frac{2a+3b}{3}}$

2 Simplify: $\sqrt{\frac{a^4b^3}{2}}$

3 Simplify: $\sqrt{\frac{1}{a}}$

4 Simplify: $\sqrt{\frac{1}{ab}}$

5 Simplify: $\sqrt{\frac{a}{b}}$

6 Simplify: $\sqrt{\frac{a^2b}{c}}$

7 Simplify: $(a-b)\sqrt{\frac{a+b}{a-b}}$

8 Simplify: $\frac{\sqrt{a^2-b^2}}{\sqrt{(a-b)^2}}$

9 The fraction $\frac{3}{\sqrt{3a^2b}}$ is equivalent to

1) $\frac{1}{a\sqrt{b}}$

2) $\frac{\sqrt{b}}{ab}$

3) $\frac{\sqrt{3b}}{ab}$

4) $\frac{\sqrt{3}}{a}$

10 The expression $\frac{2x+4}{\sqrt{x+2}}$ is equivalent to

1) $\frac{(2x+4)\sqrt{x-2}}{x-2}$

2) $\frac{(2x+4)\sqrt{x-2}}{x-4}$

3) $2\sqrt{x-2}$

4) $2\sqrt{x+2}$

11 The expression $\frac{\sqrt{x}}{\sqrt{x}-1}$ is equivalent to

1) $x + \sqrt{x}$

2) $\frac{x + \sqrt{x}}{x-1}$

3) $\frac{\sqrt{x}-1}{x}$

4) $1 - \sqrt{x}$

12 Expressed with a rational denominator and in simplest form, $\frac{x}{x-\sqrt{x}}$ is

1) $\frac{x^2+x\sqrt{x}}{x^2-x}$

2) $-\sqrt{x}$

3) $\frac{x+\sqrt{x}}{1-x}$

4) $\frac{x+\sqrt{x}}{x-1}$

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Answer Section

1 ANS:

$$\sqrt{6a+9b}$$

REF: 089312al

2 ANS:

$$\frac{a^2b\sqrt{2b}}{2}$$

REF: 019415al

3 ANS:

$$\frac{\sqrt{a}}{a}$$

REF: 039413al

4 ANS:

$$\frac{\sqrt{ab}}{ab}$$

REF: 039505al

5 ANS:

$$\frac{\sqrt{ab}}{b}$$

REF: 119411al

6 ANS:

$$\frac{a\sqrt{bc}}{c}$$

REF: 019615al

7 ANS:

$$\sqrt{a^2-b^2}$$

REF: 099414al

8 ANS:

$$\frac{\sqrt{a^2-b^2}}{a-b}$$

REF: 060012al

9 ANS: 3

$$\frac{3}{\sqrt{3a^2b}} = \frac{3}{a\sqrt{3b}} \cdot \frac{\sqrt{3b}}{\sqrt{3b}} = \frac{3\sqrt{3b}}{3ab} = \frac{\sqrt{3b}}{ab}$$

REF: 081019a2

10 ANS: 4

$$\frac{2x+4}{\sqrt{x+2}} \cdot \frac{\sqrt{x+2}}{\sqrt{x+2}} = \frac{2(x+2)\sqrt{x+2}}{x+2} = 2\sqrt{x+2}$$

REF: 011122a2

11 ANS: 2

REF: 080221siii

12 ANS: 4

$$\frac{x}{x-\sqrt{x}} \times \frac{x+\sqrt{x}}{x+\sqrt{x}} = \frac{x^2+x\sqrt{x}}{x^2-x} = \frac{x(x+\sqrt{x})}{x(x-1)} = \frac{x+\sqrt{x}}{x-1}$$

REF: 061325a2