A.APR.D.7: Rationalizing Denominators 4

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

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

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

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

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

6   For all values for which the function is defined, the expression $\sqrt{\dfrac{a}{bc}}$ is equivalent to

1) $\sqrt{a}$ 2) $\dfrac{a\sqrt{bc}}{bc}$ 3) $\sqrt{abc}$ 4) $\dfrac{\sqrt{abc}}{bc}$

7   Simplify: $\sqrt{\dfrac{a^2 b}{c}}$

8   Simplify: $(a-b)\sqrt{\dfrac{a+b}{a-b}}$

9   Simplify: $\dfrac{\sqrt{a^2-b^2}}{\sqrt{(a-b)^2}}$

10   The fraction $\dfrac{3}{\sqrt{3a^2 b}}$ is equivalent to

1) $\dfrac{1}{a\sqrt{b}}$ 2) $\dfrac{\sqrt{b}}{ab}$ 3) $\dfrac{\sqrt{3b}}{ab}$ 4) $\dfrac{\sqrt{3}}{a}$

11   The expression $\dfrac{2x+4}{\sqrt{x+2}}$ is equivalent to

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

3) $2\sqrt{x-2}$ 4) $2\sqrt{x+2}$

12 The expression $\dfrac{\sqrt{x}}{\sqrt{x}-1}$ is equivalent to

1) $x+\sqrt{x}$ 2) $\dfrac{x+\sqrt{x}}{x-1}$ 3) $\dfrac{\sqrt{x}-1}{x}$

4) $1-\sqrt{x}$

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

1) $\dfrac{x^2+x\sqrt{x}}{x^2-x}$ 2) $-\sqrt{x}$ 3) $\dfrac{x+\sqrt{x}}{1-x}$

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

14 Simplify: $\sqrt[3]{\dfrac{2a^4}{3b^2}}$

15 Simplify: $\dfrac{2a}{3x}\sqrt[3]{\dfrac{27x^4}{a^2}}$

16 Simplify: $\dfrac{a}{b}\sqrt[5]{\dfrac{32a}{b^2}}$

17 Simplify: $\sqrt[8]{\dfrac{a^4b^2}{c}}$

18 Simplify: $\sqrt{\dfrac{a}{2}}+\dfrac{\sqrt{2a}}{2}$

19 Simplify: $\sqrt{\dfrac{1}{a}}+\sqrt[3]{\dfrac{1}{b}}$

20 Simplify: $b\sqrt{a}-a^2b^2\sqrt{\dfrac{1}{ab^2}}+\sqrt{a^3b^2}$

21 Simplify: $\dfrac{\sqrt{x}-\sqrt{x-2}}{\sqrt{x}+\sqrt{x-2}}$

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Answer Section

1 ANS:
$$\sqrt{6a + 9b}$$

REF: 089312al

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

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: 4
$$\sqrt{\frac{a}{bc}} \sqrt{\frac{bc}{bc}} = \frac{\sqrt{abc}}{bc}$$

REF: 081610a2

7 ANS:
$$\frac{a\sqrt{bc}}{c}$$

REF: 019615al

8 ANS:
$$\sqrt{a^2 - b^2}$$

REF: 099414al

9 ANS:

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

REF: 060012al

10 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

11 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

12 ANS: 2   REF: 080221siii

13 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

14 ANS:

$$\frac{a\sqrt[3]{18ab}}{3b}$$

REF: 099602al

15 ANS:

$$2\sqrt[3]{ax}$$

REF: 019811al

16 ANS:

$$\frac{2a\sqrt[5]{ab^3}}{b^3}$$

REF: 039807al

17 ANS:

$$\frac{\sqrt[8]{a^4b^2c^7}}{c}$$

REF: 099911al

18 ANS:

$$\sqrt{2a}$$

REF: 119411al

19 ANS:

$$\frac{b\sqrt{a} + a\sqrt[3]{b^2}}{ab}$$

REF: 089710al

20 ANS:

$$b\sqrt{a}$$

REF: 060505al

21 ANS:

$$x - 1 - \sqrt{x^2 - 2x}$$

REF: 030504al