A.APR.D.7: Rationalizing Denominators 2

1 The expression $\frac{1}{2-\sqrt{3}}$ is equivalent to

1) $2+\sqrt{3}$ 2) $2-\sqrt{3}$ 3) $\frac{2+\sqrt{3}}{-1}$

4) $\frac{2-\sqrt{3}}{-1}$

2 The expression $\frac{5}{2-\sqrt{3}}$ is equivalent to

1) $10+5\sqrt{3}$ 2) $-2-\sqrt{3}$ 3) $-10-5\sqrt{3}$

4) $2+\sqrt{3}$

3 The expression $\frac{2}{\sqrt{3}-1}$ is equivalent to

1) $\sqrt{3}+1$ 2) $\frac{\sqrt{3}+3}{2}$ 3) $\sqrt{3}+2$

4) $2\sqrt{3}+1$

4 The expression $\frac{2}{3-\sqrt{3}}$ is equivalent to

1) $1+2\sqrt{3}$ 2) $1-2\sqrt{3}$ 3) $\frac{3-\sqrt{3}}{3}$

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

5 The expression $\frac{6}{3-\sqrt{3}}$ is equivalent to

1) $2(3+\sqrt{3})$ 2) $18-6\sqrt{3}$ 3) $3+\sqrt{3}$

4) $3-\sqrt{3}$

6 The expression $\frac{1}{2-\sqrt{11}}$ is equivalent to

1) $\frac{2+\sqrt{11}}{9}$ 2) $\frac{2+\sqrt{11}}{7}$ 3) $-\frac{2+\sqrt{11}}{7}$

4) $-\frac{2+\sqrt{11}}{9}$

7 The expression $\frac{7}{3-\sqrt{2}}$ is equivalent to

1) $3+\sqrt{2}$ 2) $3-\sqrt{2}$ 3) $\frac{3+\sqrt{2}}{7}$

4) $\frac{21+\sqrt{2}}{7}$

8 The expression $\frac{2}{\sqrt{3}+1}$ is equivalent to

1) $\frac{\sqrt{3}}{2}$ 2) $\frac{2\sqrt{3}+2}{4}$ 3) $\sqrt{3}-1$ 4) $1-\sqrt{3}$

9 The expression $\frac{7}{2+3\sqrt{2}}$ is equivalent to

1) $\frac{-2+3\sqrt{2}}{2}$ 2) $\frac{2-3\sqrt{2}}{2}$ 3) $-2+3\sqrt{2}$

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

10 What is the reciprocal of $3-\sqrt{5}$?

1) $\frac{3-\sqrt{5}}{4}$ 2) $\frac{3+\sqrt{5}}{4}$ 3) $\frac{3-\sqrt{5}}{14}$

4) $\frac{3+\sqrt{5}}{14}$

11 The expression $\frac{3+\sqrt{2}}{3-\sqrt{2}}$ is equivalent to

1) $\frac{7}{11+6\sqrt{2}}$ 2) $\frac{11-6\sqrt{2}}{7}$ 3) $\frac{11}{7}$

4) $\frac{11+6\sqrt{2}}{7}$

12 The expression $\frac{\sqrt{3}+1}{\sqrt{3}-1}$ is equivalent to

1) -1 2) 2 3) $2+\sqrt{3}$ 4) $5+\sqrt{3}$

13 Expressed in simplest form, $\frac{2\sqrt{3}}{1-\sqrt{3}}$ is equivalent to

1) $-3-\sqrt{3}$ 2) $-3+\sqrt{3}$ 3) $2\sqrt{3}$ 4) -3

14 The expression $\frac{3+5\sqrt{3}}{4-2\sqrt{3}}$ is equivalent to

1) $\frac{-9+7\sqrt{3}}{2}$ 2) $\frac{21+13\sqrt{3}}{2}$ 3) $\frac{-18+14\sqrt{3}}{4}$

4) $\frac{42-26\sqrt{3}}{4}$

15 The expression $\frac{3+\sqrt{5}}{3-\sqrt{5}}$ is equivalent to

1) $\frac{7}{2}$ 2) $\frac{7+3\sqrt{5}}{7}$ 3) $\frac{10\sqrt{5}}{7}$ 4) $\frac{7+3\sqrt{5}}{2}$

16 Express $\frac{3}{\sqrt{5}+1}$ as an equivalent fraction with a rational denominator.

17 Express $\frac{3}{3-\sqrt{5}}$ as a fraction with a rational denominator.

18 Express $\frac{5}{4-\sqrt{13}}$ as an equivalent fraction with a rational denominator.

19 Express $\frac{1}{4-\sqrt{3}}$ as an equivalent fraction with a rational denominator.

20 Express $\frac{4}{3+\sqrt{2}}$ as an equivalent fraction with a rational denominator.

21 Express $\frac{3}{\sqrt{3}+1}$ as an equivalent fraction with a rational denominator.

22 Express $\frac{2}{5-2\sqrt{3}}$ as a fraction with a rational denominator.

23 Write the fraction $\frac{\sqrt{3}}{\sqrt{3}-1}$ with a rational denominator.

24 Express in simplest form: $\frac{\frac{1}{\sqrt{5}}+\frac{1}{\sqrt{5}}}{\sqrt{5}}$

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Answer Section

1 ANS: 1 REF: 018432siii
2 ANS: 1 REF: 068131siii
3 ANS: 1 REF: 088435siii
4 ANS: 4 REF: 068831siii
5 ANS: 3 REF: 018918siii
6 ANS: 3 REF: 089319siii
7 ANS: 1 REF: 019030siii
8 ANS: 3 REF: 010328siii
9 ANS: 1 REF: 060333siii
10 ANS: 2 REF: 060218siii
11 ANS: 4 REF: 068928siii
12 ANS: 3 REF: 069433siii
13 ANS: 1 REF: 089434siii
14 ANS: 2 REF: 080333siii
15 ANS: 4 REF: 018527siii
16 ANS:
$\frac{3\sqrt{5}-3}{4}$

REF: 018610siii
17 ANS:
$\frac{3(3+\sqrt{5})}{4}$

REF: 068613siii
18 ANS:
$\frac{5(4+\sqrt{13})}{3}$

REF: 069512siii
19 ANS:
$\frac{4+\sqrt{3}}{13}$

REF: 088612siii
20 ANS:
$\frac{4(3-\sqrt{2})}{7}$

REF: 068712siii

21 ANS:

$$\frac{3(\sqrt{3}-1)}{2}$$

REF: 088907siii

22 ANS:

$$\frac{10+4\sqrt{3}}{13}$$

REF: 089009siii

23 ANS:

$$\frac{3+\sqrt{3}}{2}$$

REF: 069014siii

24 ANS:

$$\frac{2}{5}$$

REF: 089410siii