

A2.N.4: Operations with Irrational Expressions 1: Perform arithmetic operations on irrational expressions

1 The product of $(3 + \sqrt{5})$ and $(3 - \sqrt{5})$ is

- 1) $4 - 6\sqrt{5}$
- 2) $14 - 6\sqrt{5}$
- 3) 14
- 4) 4

2 Simplify: $(\sqrt{2} + 1)(\sqrt{2} - 1)$

3 Simplify: $5\sqrt{27} \div 3\sqrt{24}$

4 Simplify: $\frac{\sqrt{18}}{\sqrt{54}}$

5 Simplify: $\left(\frac{\sqrt{18} \times \sqrt{12}}{\sqrt{27}}\right)^3$

6 Simplify: $\frac{3\sqrt{15}}{\sqrt{27}} \times \frac{5\sqrt{82}}{6\sqrt{105}} \div \frac{5\sqrt{6}}{2\sqrt{63}}$

7 Simplify: $\frac{(\sqrt{5} - 2)(3 + \sqrt{5})}{5 - \sqrt{5}}$

8 Which expression represents the sum of

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

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

2) $\frac{2}{\sqrt{5}}$

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

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

9 Simplify: $3\sqrt{\frac{2}{5}} - 2\sqrt{\frac{1}{10}}$

10 Simplify: $\sqrt{\frac{4}{5}} + \frac{1}{2}\sqrt{20} - \frac{1}{5}\sqrt{45}$

11 Simplify: $2\sqrt{12} - 3\sqrt{\frac{1}{27}} - \sqrt{300} + 3\sqrt{27}$

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Answer Section

1 ANS: 4

$$(3 + \sqrt{5})(3 - \sqrt{5}) = 9 - \sqrt{25} = 4$$

REF: 081001a2

2 ANS:

1

REF: 089710a1

3 ANS:

$$\frac{5\sqrt{2}}{4}$$

REF: 039114a1

4 ANS:

$$\frac{\sqrt{3}}{3}$$

REF: 039505a1

5 ANS:

$$16\sqrt{2}$$

REF: 039309a1

6 ANS:

$$\frac{\sqrt{41}}{3}$$

REF: 060505a1

7 ANS:

$$\frac{\sqrt{5}}{5}$$

REF: 010610a1

8 ANS: 1

$$\frac{1}{\sqrt{3}} + \frac{1}{\sqrt{2}} = \frac{\sqrt{2} + \sqrt{3}}{\sqrt{6}} = \frac{\sqrt{2} + \sqrt{3}}{\sqrt{6}} \cdot \frac{\sqrt{6}}{\sqrt{6}} = \frac{\sqrt{12} + \sqrt{18}}{6} = \frac{\sqrt{4}\sqrt{3} + \sqrt{9}\sqrt{2}}{6} = \frac{2\sqrt{3} + 3\sqrt{2}}{6}$$

REF: 080210b

9 ANS:

$$\frac{2\sqrt{10}}{5}$$

REF: 089710al

10 ANS:

$$\frac{4\sqrt{5}}{5}$$

REF: 090404al

11 ANS:

$$\frac{8\sqrt{3}}{3}$$

REF: 010511al