N.RN.A.2: Operations with Radicals 1

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

5 Classical mathematics uses the term "Golden Ratio" for the ratio $\left(1+\sqrt{5}\right):2$. The Golden Ratio was used by many famous artists to determine the dimensions of their paintings. If the ratio of the length to the width of a painting is $\left(1+\sqrt{5}\right):2$, find the length, in feet, of a painting that has a width of 14 feet. Express your answer in simplest radical form.

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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: 089710al

3 ANS:
$\frac{5\sqrt{2}}{4}$

REF: 039114al

4 ANS:
$16\sqrt{2}$

REF: 039309al

5 ANS:
$7+7\sqrt{5}$.

$$\frac{1+\sqrt{5}}{2} = \frac{x}{14}$$
$$x = \frac{14(1+\sqrt{5})}{2}$$
$$x = 7(1+\sqrt{5})$$
$$x = 7+7\sqrt{5}$$

REF: 080724b