Preview 6 and Recap 6

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Preview 6

PREVIEW

Expand and simplify.

1. $(5a+2b)(2a-3b)$

2. $(8m-3n)^2$

3. $(2x-9y)(x-2y)-(x+5y)^2$

Preview 6

PREVIEW

Expand and simplify.

1. $(5a+2b)(2a-3b)$ $= 10a^2 - 15ab + 4ab - 6b^2$
$= 10a^2 - 11ab - 6b^2$

2. $(8m-3n)^2$ $= (8m-3n)(8m-3n)$
$= 64m^2 - 24mn - 24mn + 9n^2$
$= 64m^2 - 48mn + 9n^2$

3. $(2x-9y)(x-2y)-(x+5y)^2$
$= 2x^2 - 4xy - 9xy + 18y^2 - [(x+5y)(x+5y)]$
$= 2x^2 - 13xy + 18y^2 - [x^2 + 5xy + 5xy + 25y^2]$
$= 2x^2 - 13xy + 18y^2 - [x^2 + 10xy + 25y^2]$
$= 2x^2 - 13xy + 18y^2 - x^2 - 10xy - 25y^2$
$= x^2 - 23xy - 7y^2$

Recap 6

Recap 6

RECAP

1. Simplify. If there is a variable, identify for which values of the variable the radical is defined.

a) $\left(\sqrt{6}-\sqrt{5}\right)\left(\sqrt{6}+\sqrt{5}\right)$

b) $\left(2\sqrt{5}-3\sqrt{2}\right)^2$

c) $\left(\sqrt{a}+4\right)\left(\sqrt{a}-1\right)$

2. Simplify.

a) $\frac{1}{\sqrt{7}+\sqrt{2}}$

b) $\frac{3\sqrt{5}+\sqrt{2}}{\sqrt{5}+\sqrt{3}}$

c) $\frac{2}{\sqrt[4]{27}}$

RECAP

1. Simplify. If there is a variable, identify for which values of the variable the radical is defined.

a) $\left(\sqrt{6}-\sqrt{5}\right)\left(\sqrt{6}+\sqrt{5}\right)$

$= 6 + \sqrt{30} - \sqrt{30} - 5$

$= 1$

b) $\left(2\sqrt{5}-3\sqrt{2}\right)^2$

$= (2\sqrt{5}-3\sqrt{2})(2\sqrt{5}-3\sqrt{2})$

$= 4(5) - 6\sqrt{10} - 6\sqrt{10} + 9(2)$

$= 20 - 12\sqrt{10} + 18$

$= 38 - 12\sqrt{10}$

$a \geq 0$

c) $\left(\sqrt{a}+4\right)\left(\sqrt{a}-1\right) = a - \sqrt{a} + 4\sqrt{a} - 4$

$= a + 3\sqrt{a} - 4$

2. Simplify.

a) $\frac{1}{\sqrt{7}+\sqrt{2}} \cdot \frac{(\sqrt{7}-\sqrt{2})}{(\sqrt{7}-\sqrt{2})}$

$= \frac{\sqrt{7}-\sqrt{2}}{7-2} = \frac{\sqrt{7}-\sqrt{2}}{5}$

b) $\frac{(3\sqrt{5}+\sqrt{2})}{(\sqrt{5}+\sqrt{3})} \cdot \frac{(\sqrt{5}-\sqrt{3})}{(\sqrt{5}-\sqrt{3})}$

$= \frac{3\cdot 5 - 3\sqrt{15} + \sqrt{10} - \sqrt{6}}{5-3}$

$= \frac{15 - 3\sqrt{15} + \sqrt{10} - \sqrt{6}}{2}$

c) $\frac{2}{\sqrt[4]{27}} \cdot \frac{\sqrt[4]{3}}{\sqrt[4]{3}}$

$= \frac{2\sqrt[4]{3}}{\sqrt[4]{81}} = \frac{2\sqrt[4]{3}}{3}$