

Seventeenth Set of Homework for Math 05

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Please note: You should fully justify your answers.

1 Radical expressions

1. Simplify each of the following radical expressions:

(a) $\sqrt{125}$

(b) $\sqrt{72}$

(c) $\sqrt{98}$

(d) $\sqrt{600}$

(e) $\sqrt{48}$

(f) $\sqrt[3]{-8}$

(g) $\sqrt[3]{56}$

(h) $\sqrt[3]{\frac{9}{64}}$

(i) $\sqrt{\frac{1}{5}}$

(j) $\sqrt{\frac{2}{3}}$

(k) $\frac{\sqrt{12}}{\sqrt{32}}$

2. Simplify each of the following radical expressions:

(a) $3\sqrt{8} - \sqrt{18} + 5\sqrt{52}$

(b) $-4\sqrt{27} + \sqrt{75} - \sqrt{6}$

(c) $2\sqrt{28} - 3\sqrt{63} - \sqrt{44} + 5\sqrt{99}$

3. Simplify each of the following radical expressions:

(a) $\sqrt{3}(\sqrt{7} + \sqrt{5})$

(b) $\sqrt{2}(\sqrt{10} + \sqrt{7})$

(c) $(\sqrt{3} - \sqrt{5})(\sqrt{5} + \sqrt{21})$

(d) $(\sqrt{7} - \sqrt{2})(\sqrt{7} + \sqrt{2})$

(e) $(\sqrt{3} - \sqrt{2})^2$

(f) $(\sqrt{5} + \sqrt{15})^2$

4. Evaluate each of the following expressions for the given value of the variables:

(a) $\sqrt{3x - 2}$ when $x = 6$

(b) $\sqrt{2x - 6}$ when $x = -7$

(c) $\sqrt{x^2 - 4xy}$ when $x = -1$ and $y = 6$

(d) $\sqrt{x^2 - y^2}$ when $x = -5$ and $y = -4$

(e) $\sqrt{x^2 + x + 10}$ when $x = 6$

(f) $\sqrt{5 - x^2}$ when $x = -5$

(g) $\sqrt{-2xy}$ when $x = -4$ and $y = 50$