

Name: _____

Date: _____

Pre Calculus 11 Ch 3 Review Lesson 1 and 2: Practice Multiplying and Simplifying Radicals

1. Simplify each of the following radicals to mixed radicals in lowest terms:

a) $\sqrt{(3)^3(5)^5(6)^3}$	b) $\sqrt{1000 \times 50 \times 18}$	c) $\sqrt{16c^3}$	d) $\sqrt{a^{30}}$
d) $\sqrt{121a^3b^3}$	e) $-\sqrt{4m^2p^7}$	f) $\sqrt[3]{54a^4b^5}$	g) $\sqrt[3]{64m^3p^4}$
h) $\sqrt[5]{p^7q^8r^9s^{10}}$	i) $\sqrt{16y+48}$	j) $\sqrt{50m-175}$	k) $\sqrt{n^3+2n^2}$
l) $\sqrt{50(5p-2)^2}$	m) $\sqrt{x^2-2x+1}$	n) $\sqrt{n^5(m+1)^3}$	o) $\sqrt{4a^2+20a+25}$
p) $\sqrt{x^{4a+2}}$	q) $\sqrt{b^{3m-9}}$	r) $\sqrt{x^{4a+1}}$	s) $\sqrt[3]{x^6y^{3n}}$
t) $\sqrt{b^{3n+2}c^{4n}}$	u) $\sqrt[3]{8^2a^{4n+1}b^{3n+2}}$	v) $\sqrt{m^{3x}}$	w) $\sqrt[3]{m^{3x}}$

2. Multiply each of the following and simplify to a mixed radical in lowest terms:

a) $(-7\sqrt{2})(3\sqrt{10})(\sqrt{5})$	b) $\sqrt{6}(\sqrt{12})(\sqrt{72})$	c) $\sqrt{38}(3\sqrt{18})(2\sqrt{2})$
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d) $\left(\frac{2}{3}\sqrt{6}\right)(-5\sqrt{14})(\sqrt{90})$	e) $(\sqrt[3]{48})(\sqrt[3]{300})(\sqrt[3]{90})$	f) $(\sqrt{27x^5})(\sqrt{3x^7})$
g) $\sqrt{xy}(\sqrt{x^3y^9})$	h) $(\sqrt[3]{r^4s^8})(\sqrt[3]{r^2s^5})$	i) $(\sqrt[3]{c^7n})(\sqrt[3]{c^5n^4})$

3. Expand and Simplify each of the following:

a) $2\sqrt{3}(3\sqrt{5} + \sqrt{18})$	b) $\sqrt{12}(\sqrt{40} + \sqrt{200})$
c) $(\sqrt{10} - 4)(3\sqrt{2} + 1)$	d) $(\sqrt{15} + \sqrt{5})(\sqrt{5} - \sqrt{3})$
e) $(3\sqrt{20} - 2\sqrt{6})(2\sqrt{15} + 4\sqrt{3})$	f) $(2\sqrt{p} - 1)(2\sqrt{p} + 1)$
g) $(\sqrt{a} + \sqrt{bc})(\sqrt{a} - \sqrt{bc})$	h) $(3 + \sqrt{cd})(3 + \sqrt{cd})$

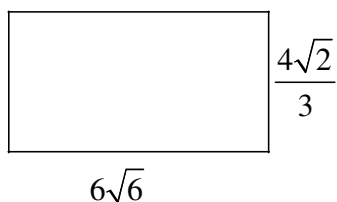
4. Add or Subtract each of the following and then simplify:

a) $\sqrt{24} + \sqrt{6}$	b) $\sqrt{32} + 5\sqrt{2}$	c) $4\sqrt{27} + \sqrt{48}$
d) $6\sqrt{135} - 5\sqrt{60}$	e) $\sqrt{50} + \sqrt{98} + \sqrt{18}$	f) $\sqrt{80} + \sqrt{180} + \sqrt{45}$
g) $5\sqrt{40} + \sqrt{125} - 6\sqrt{180} + \sqrt{250}$	h) $-3\sqrt{12} - \sqrt{18} + \sqrt{72} + 8\sqrt{75}$	
i) $\frac{1}{2}\sqrt{32} - \frac{6}{5}\sqrt{200} - \frac{4}{3}\sqrt{18}$	j) $\frac{\sqrt{96}}{3} - \frac{3\sqrt{24}}{2} - \frac{2\sqrt{54}}{6}$	
k) $4a\sqrt[3]{27a^4} - \sqrt[3]{125a^7}$	l) $12\sqrt[3]{a^4b^5c^6} - 4c^2\left(\sqrt[3]{125ab^2}\right)$	

5. Expand and Simplify each of the following:

a) $2\sqrt{5}(\sqrt{45} - 3\sqrt{20} + 8\sqrt{5})$	b) $-3\sqrt{2}(3\sqrt{2} + 5\sqrt{50} - 2\sqrt{32})$
c) $2\sqrt{7}(\sqrt{28} - 8\sqrt{7} + 2\sqrt{63})$	d) $4\sqrt{5}\left(3\sqrt{15} - \frac{1}{2}\sqrt{60} - \frac{2}{3}\sqrt{70}\right)$
e) $4\sqrt{3a}(\sqrt{3a} - \sqrt{12a} - \sqrt{75a})$	f) $2\sqrt{x}\left(-3\sqrt{9x} - 5\sqrt{x^3} - \frac{1}{2}\sqrt{25x}\right)$
g) $\left(2\sqrt[3]{9x^2} + \sqrt[3]{6x^4}\right)\left(\sqrt[3]{4x^2} + 5\sqrt[3]{9x^4}\right)$	h) $\left(2\sqrt[3]{9x^2} + \sqrt[3]{6x^4}\right)\left(\sqrt[3]{4x^2} + 5\sqrt[3]{9x^4}\right)$

6. Find the PERIMETER and AREA of the following rectangle:



In rectangle $ABCD$, $AD = 1$, P is on $\overline{AB}$, and $\overline{DB}$ and $\overline{DP}$ trisect $\angle ADC$. What is the perimeter of $\triangle BDP$?

- (A) $3 + \frac{\sqrt{3}}{3}$ (B) $2 + \frac{4\sqrt{3}}{3}$ (C) $2 + 2\sqrt{2}$
 (D) $\frac{3 + 3\sqrt{5}}{2}$ (E) $2 + \frac{5\sqrt{3}}{3}$

