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L06 - 4.4 Irrational Numbers Deeper Worksheet

1. Write each of the following as an entire radical.

a) $3\sqrt{2}$

$\sqrt{(3^2)}\cdot\sqrt{2}$
$\sqrt{9}\sqrt{2}$
$\sqrt{18}$

b) $4\sqrt{3}$

$\sqrt{4^2}\cdot\sqrt{3}$
$\sqrt{16}\cdot\sqrt{3}$
$\sqrt{48}$

c) $2\sqrt{5}$

$\sqrt{2^2}\cdot\sqrt{5}$
$\sqrt{4}\cdot\sqrt{5}$
$\sqrt{20}$

d) $5\sqrt{27}$

$\sqrt{5^2}\sqrt{27}$
$\sqrt{25}\sqrt{27}$
$\sqrt{675}$

e) $6\sqrt{8}$

$\sqrt{6^2}\sqrt{8}$
$\sqrt{36}\sqrt{8}$
$\sqrt{288}$

f) $2\sqrt{227}$

$\sqrt{2^2}\sqrt{227}$
$\sqrt{4}\sqrt{227}$
$\sqrt{908}$

g) $3x\sqrt{2}$

$\sqrt{(3x)^2}\cdot\sqrt{2}$
$\sqrt{9x^2}\cdot\sqrt{2}$
$\sqrt{18x^2}$

h) $5v\sqrt{2v}$

$\sqrt{(5v)^2}\sqrt{2v}$
$\sqrt{25v^2}\sqrt{2v}$
$\sqrt{50v^3}$

i) $7m\sqrt{22}$

$\sqrt{(7m)^2}\sqrt{22}$
$\sqrt{49m^2}\sqrt{22}$
$\sqrt{1078m^2}$

j) $5x^3\sqrt{2x}$

$\sqrt{(5x^3)^2}\sqrt{2x}$
$\sqrt{25x^6}\sqrt{2x}$
$\sqrt{50x^7}$

k) $13y^2\sqrt{2x}$

$\sqrt{(13y^2)^2}\sqrt{2x}$
$\sqrt{169y^4}\sqrt{2x}$
$\sqrt{338y^4}$

l) $15xy^2\sqrt{12xy}$

$\sqrt{(15xy^2)^2}\sqrt{12xy}$
$\sqrt{225x^2y^4}\sqrt{12xy}$
$\sqrt{2700x^3y^5}$

m) $13p^4\sqrt{2}$

$\sqrt{(13p^4)^2}\sqrt{2}$
$\sqrt{169p^8}\sqrt{2}$
$\sqrt{338p^8}$

2. Write each of the following as an entire radical

a) $4\sqrt[3]{2}$

$\sqrt[3]{4^3}\sqrt[3]{2}$
$\sqrt[3]{64}\sqrt[3]{2}$
$\sqrt[3]{128}$

b) $7\sqrt[3]{12}$

$\sqrt[3]{7^3}\sqrt[3]{12}$
$\sqrt[3]{343}\sqrt[3]{12}$
$\sqrt[3]{4116}$

c) $2\sqrt[3]{2}$

$\sqrt[3]{2^3}\sqrt[3]{2}$
$\sqrt[3]{8}\sqrt[3]{2}$
$\sqrt[3]{16}$

d) $5\sqrt[3]{3}$

$\sqrt[3]{5^3}\sqrt[3]{3}$
$\sqrt[3]{125}\sqrt[3]{3}$
$\sqrt[3]{375}$

e) $14\sqrt[3]{12}$

$\sqrt[3]{14^3}\sqrt[3]{12}$
$\sqrt[3]{2744}\sqrt[3]{12}$
$\sqrt[3]{32,928}$

f) $4x\sqrt[3]{2}$

$\sqrt[3]{(4x)^3}\sqrt[3]{2}$
$\sqrt[3]{64x^3}\sqrt[3]{2}$
$\sqrt[3]{128x^3}$

g) $5m\sqrt[3]{5}$

$\sqrt[3]{(5m)^3}\sqrt[3]{5}$
$\sqrt[3]{125m^3}\sqrt[3]{5}$
$\sqrt[3]{625m^3}$

h) $2p\sqrt[3]{2p}$

$\sqrt[3]{(2p)^3}\sqrt[3]{2p}$
$\sqrt[3]{8p^3}\sqrt[3]{2p}$
$\sqrt[3]{16p^4}$

i) $3m^2\sqrt[3]{2m}$

$\sqrt[3]{(3m^2)^3}\sqrt[3]{2m}$
$\sqrt[3]{27m^6}\sqrt[3]{2m}$
$\sqrt[3]{54m^7}$

j) $5v\sqrt[3]{2v^{13}}$

$\sqrt[3]{(5v)^3}\sqrt[3]{2v^{13}}$
$\sqrt[3]{125v^3}\sqrt[3]{2v^{13}}$
$\sqrt[3]{250v^{16}}$