

## RADICALS

**Exercise 1:** Work out:

a)  $\sqrt[6]{x^2} \cdot \sqrt[4]{x^5} =$

b)  $\sqrt[3]{a} \cdot \sqrt{a^5} \cdot \sqrt[7]{a^3} =$

c)  $\sqrt[5]{b^4} \cdot \sqrt[7]{b^3} : \sqrt[8]{b^5} =$

d)  $\sqrt{y^{-5}} \cdot \sqrt[3]{y^4} : \sqrt[4]{y^{-7}} =$

e)  $\frac{\sqrt[3]{\sqrt{a}} \cdot \sqrt[5]{a^{-7}}}{\sqrt{a^{-1}}} =$

**Exercise 2:** Work out:

a)  $\sqrt[5]{x^3 y^2} \cdot \sqrt[4]{x^7 y} =$

b)  $\sqrt[5]{a^2 b^{-3}} \cdot \sqrt{a^{-5} b} \cdot \sqrt[10]{a^3 b^{-7}}$

c)  $\frac{\sqrt[5]{x^4 y^{-3}} \cdot \sqrt[3]{x^{-4} y^2}}{\sqrt{x^{-1} y^3}} =$

d)  $\frac{\sqrt[5]{a^2 b^{-3}} \cdot \sqrt{a^{-5} b^7}}{\sqrt[4]{ab^{-3}}} =$

**Exercise 3:** Work out:

a)  $5\sqrt{8} - 3\sqrt{32} + \sqrt{128} =$

b)  $\sqrt{72} - 2\sqrt{45} + 3\sqrt{50} - 4\sqrt{80} =$

c)  $\sqrt{125} + 3\sqrt{54} - 7\sqrt{45} + 4\sqrt{24} =$

d)  $2\sqrt{98} + 5\sqrt{32} - 4\sqrt{72} + \sqrt{50} =$

e)  $7\sqrt[6]{64x^2} - \sqrt[3]{27x} + 6\sqrt[9]{x^3} =$

f)  $3\sqrt[4]{256a^{10}} - 5\sqrt{81a^5} - 4\sqrt[14]{a^{35}} =$

**Exercise 4:** Work out:

a)  $\frac{\sqrt[4]{a^3} \cdot a^{-1}}{a\sqrt{a}} =$

b)  $\frac{\sqrt{12} - \sqrt{3}}{\sqrt{108}} =$

c)  $\frac{3\sqrt{216} - 3\sqrt{150}}{4\sqrt{32} - \sqrt{98}} =$

**Exercise 5:** Rationalize:

a)  $\frac{6}{\sqrt{2}} =$

c)  $\frac{3}{\sqrt{15}} =$

e)  $\frac{10}{\sqrt[5]{6^2}} =$

g)  $\frac{xy^2}{\sqrt[9]{x^5y^3}} =$

i)  $\frac{6}{\sqrt{7}-2} =$

k)  $\frac{3}{\sqrt{2}+\sqrt{5}} =$

m)  $\frac{8}{\sqrt{7}-\sqrt{3}} =$

o)  $\frac{1+\sqrt{2}}{1-\sqrt{2}} =$

b)  $\frac{20}{\sqrt{5}} =$

d)  $\frac{21}{\sqrt[3]{7}} =$

f)  $\frac{ab}{\sqrt[7]{a^2b^3}} =$

h)  $\frac{11}{5+\sqrt{3}} =$

j)  $\frac{17}{2+\sqrt{5}} =$

l)  $\frac{8}{\sqrt{7}-\sqrt{3}} =$

n)  $\frac{2}{\sqrt{10}-\sqrt{2}} =$

p)  $\frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}} =$