

1. Write each power in the form  $a^b$ :

a)  $(2^3)^4 = 2^{12}$

b)  $(2^{-3})^4 = 2^{-12}$

c)  $(3^{\frac{1}{2}})^{12} = 3^6$

d)  $(3^6)^{\frac{1}{2}} = 3^3$

e)  $(22^{-3})^{\frac{1}{4}} = 22^{-\frac{3}{4}}$

f)  $(6^{-\frac{3}{2}})^{-\frac{4}{7}} = 6^{\frac{6}{7}}$

g)  $(12^3)^5 = 12^{15}$

h)  $(6^{-5})^4 = 6^{-20}$

i)  $(7^{\frac{1}{3}})^{12} = 7^4$

j)  $(3^8)^{\frac{1}{4}} = 3^2$

k)  $(10^{-3})^{-\frac{1}{4}} = 10^{\frac{3}{4}}$

l)  $(11^{-\frac{5}{2}})^{-\frac{4}{5}} = 11^2$

2. Write each power in the form  $a^b$ :

a)  $(13^{\frac{11}{2}})^{-\frac{1}{2}}$      $13^{-\frac{11}{4}}$

b)  $\sqrt{33^6}$      $33^3$

c)  $(\sqrt{14})^{\frac{18}{7}}$      $14^{\frac{9}{7}}$

d)  $\sqrt[3]{23^{\frac{1}{2}}}$      $23^{\frac{1}{6}}$

e)  $(97^3)^{-\frac{1}{6}}$      $97^{-\frac{1}{2}}$

f)  $(22^{-\frac{3}{41}})^{-\frac{1}{4}}$      $22^{\frac{3}{164}}$

g)  $(23^{\frac{11}{3}})^{-\frac{5}{2}}$      $23^{-\frac{55}{6}}$

h)  $\sqrt{8^8}$      $8^4$

i)  $(\sqrt{141})^{\frac{14}{5}}$      $141^{\frac{7}{5}}$

j)  $\sqrt[3]{31^{\frac{1}{20}}}$      $31^{\frac{1}{60}}$

k)  $(7^{13})^{-\frac{1}{6}}$      $7^{-\frac{13}{6}}$

l)  $(222^{\frac{31}{41}})^{-\frac{1}{2}}$      $222^{-\frac{31}{82}}$