

1. Evaluate

a) $\sqrt{0} = 0$

b) $\sqrt{1} = 1$

c) $\sqrt{4} = 2$

d) $\sqrt{100} = 10$

e) $64^{\frac{1}{2}} = 8$

f) $\sqrt{81} = 9$

g) $\sqrt{121} = 11$

h) $\sqrt{144} = 12$

i) $49^{\frac{1}{2}} = 7$

j) $\sqrt{36} = 6$

k) $25^{\frac{1}{2}} = 5$

l) $\sqrt{169} = 13$

2. Evaluate:

a) $\sqrt[3]{0} = 0$

b) $\sqrt[3]{1} = 1$

c) $8^{\frac{1}{3}} = 2$

d) $\sqrt[3]{-1} = -1$

e) $\sqrt[3]{-8} = -2$

f) $27^{\frac{1}{3}} = 3$

g) $\sqrt[3]{-27} = -3$

h) $\sqrt[3]{-64} = -4$

i) $125^{\frac{1}{3}} = 5$

j) $\sqrt[3]{216} = 6$

k) $\sqrt[3]{64} = 4$

l) $(-125)^{\frac{1}{3}} = -5$

3. Write as a single power:

a) $2^{\frac{1}{2}} \times 3^{\frac{1}{2}}$ $6^{\frac{1}{2}}$ or $\sqrt{6}$

b) $\sqrt{2} \times \sqrt{3}$ $6^{\frac{1}{2}}$ or $\sqrt{6}$

c) $(-5)^{\frac{11}{2}} \times (-5)^{\frac{3}{2}}$ $(-5)^7$

d) $\sqrt{7} \div 7^{\frac{5}{2}}$ 7^{-2}

e) $5^{-\frac{11}{2}} \div 5^{\frac{3}{2}}$ 5^{-7}

f) $\sqrt{7} \div 7^{\frac{5}{2}}$ 7^{-2}

g) $6^{\frac{5}{6}} \times 6^{\frac{1}{2}}$ $6^{\frac{4}{3}}$

h) $\sqrt{22} \div 22^{\frac{11}{4}}$ $22^{-\frac{9}{4}}$

i) $55^{\frac{11}{2}} \div 5^{\frac{11}{2}}$ $11^{\frac{11}{2}}$

j) $(-7)^{-14} \times (-7)^{\frac{5}{2}}$ $(-7)^{-\frac{23}{2}}$

k) $(-15)^{-\frac{11}{2}} \div 5^{-\frac{11}{2}}$ $(-3)^{-\frac{11}{2}}$

l) $\sqrt{-17} \div 17^{\frac{1}{2}}$ $(-1)^{\frac{1}{2}}$

4. Write as a single power:

a) $\frac{12^{\frac{1}{2}}}{3^{\frac{1}{2}}}$ $4^{\frac{1}{2}}$ or 2

b) $\frac{\sqrt{20}}{\sqrt{4}}$ $5^{\frac{1}{2}}$ or $\sqrt{5}$

c) $\frac{5^{\frac{11}{2}}}{5^{\frac{3}{2}}}$ 5^4

d) $\frac{\sqrt{34}}{17^{\frac{1}{2}}}$ $2^{\frac{1}{2}}$ or $\sqrt{2}$

e) $\frac{35^{-\frac{1}{2}}}{35^{-\frac{13}{2}}}$ 35^6

f) $\frac{\sqrt{7}}{7^{\frac{15}{4}}}$ $7^{-\frac{1}{4}}$

g) $\frac{12^{\frac{1}{2}}}{12^{-\frac{21}{6}}}$ 12^4

h) $\frac{20^{-\frac{1}{3}}}{\sqrt{20}}$ $20^{-\frac{5}{6}}$

i) $\frac{15^{-\frac{13}{7}}}{(-5)^{-\frac{13}{7}}}$ $(-3)^{-\frac{13}{7}}$

j) $\frac{(-97)^{\frac{31}{22}}}{(-97)^{-\frac{21}{22}}}$ $(-97)^{\frac{26}{11}}$

k) $\frac{45^{-\frac{3}{7}}}{(-5)^{-\frac{3}{7}}}$ $(-9)^{-\frac{3}{7}}$

l) $\frac{(-77)^{-\frac{31}{22}}}{(-7)^{-\frac{31}{22}}}$ $11^{\frac{31}{22}}$

5. Evaluate:

a) $2^{\frac{1}{2}} \times 8^{\frac{1}{2}}$ 4

b) $\sqrt{2} \times \sqrt{2}$ 2

c) $5^{\frac{11}{2}} \times 5^{-\frac{7}{2}}$ 25

d) $\sqrt{7} \div 7^{\frac{3}{2}}$ $\frac{1}{7}$

e) $(-5)^{\frac{7}{2}} \div (-5)^{\frac{3}{2}}$ 25

f) $\sqrt{9} \div 9^{\frac{1}{2}}$ 1

g) $16^{\frac{5}{6}} \times 16^{-\frac{1}{3}}$ 4

h) $\sqrt{22} \div 22^{\frac{3}{2}}$ $\frac{1}{22}$

i) $45^{\frac{1}{2}} \div 5^{\frac{1}{2}}$ 3

j) $(-8)^{-4} \times (-8)^{\frac{11}{3}}$ $-\frac{1}{2}$

k) $(-15)^{-2} \div 5^{-2}$ $\frac{1}{9}$

l) $\sqrt{-17} \div (-17)^{\frac{1}{2}}$ 1