

Surds and Indices

Write down the first 12 squared numbers:

.....

Write down the first 5 cubed numbers:

.....

REMEMBER: $x^{1/2} = \sqrt{x}$	$x^{-1} = \frac{1}{x}$	$x^{1/3} = \sqrt[3]{x}$
$x^{2/3} = (\sqrt[3]{x})^2$	$x^{-2} = \frac{1}{x^2}$	$x^{-1/2} = \frac{1}{\sqrt{x}}$

Question 2:

- | | | |
|------------------|------------------|-------------------|
| a) $16^{1/2} =$ | g) $8^{2/3} =$ | n) $4^{-2} =$ |
| b) $64^{1/2} =$ | h) $64^{2/3} =$ | o) $5^{-2} =$ |
| c) $121^{1/2} =$ | i) $125^{2/3} =$ | p) $16^{-1/2} =$ |
| d) $8^{1/3} =$ | j) $2^{-1} =$ | q) $49^{-1/2} =$ |
| e) $64^{1/3} =$ | k) $7^{-1} =$ | r) $100^{-1/2} =$ |
| f) $125^{1/3} =$ | l) $9^{-1} =$ | |
| | m) $3^{-2} =$ | |

REMEMBER: $\sqrt{a} \times \sqrt{b} = \sqrt{a \times b}$

For example: Simplify $\sqrt{8}$

$$\sqrt{8} = \sqrt{2 \times 4} = \sqrt{4} \times \sqrt{2} = 2 \times \sqrt{2} = 2\sqrt{2}$$

Question 3

Simplify the following:

a) $\sqrt{20} =$

b) $\sqrt{32} =$

c) $\sqrt{80} =$

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d) $\sqrt{45} =$

e) $\sqrt{200} =$

f) $\sqrt{75} =$

g) $\sqrt{28} =$

h) $\sqrt{27} =$

i) $\sqrt{72} =$

Question 4

Use the squared numbers above and the grey boxes above to help you work out the exact values of:

a) $\sqrt{2} \times \sqrt{18} =$

b) $\sqrt{18} \times \sqrt{2} =$

c) $\sqrt{10} \times \sqrt{20} =$

d) $2\sqrt{5} \times \sqrt{10} =$

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