Negative and Fractional Indices

If a power is negative we flip the answer:

$2^{-1} = \frac{1}{2}$ $3^{-2} = \frac{1}{9}$ $5^{-1} = \frac{1}{5}$

$\left(\frac{3}{4}\right)^{-1} = \frac{4}{3}$ $5^{-2} = \frac{1}{25}$ $\left(\frac{2}{5}\right)^{-1} = \frac{5}{2}$

This is because:

$2^3 \div 2^5 = 2^{-2}$

We know this is true from the earlier rules

2^3 is 8 and 2^5 is 32

$8 \div 32 = \frac{1}{4}$

So $2^{-2} = \frac{1}{4}$

Power of $\frac{1}{2}$ means square root

$49^{\frac{1}{2}} = 7$ $4^{\frac{1}{2}} = 2$ $100^{\frac{1}{2}} = 10$

$25^{\frac{1}{2}} = 5$ $9^{\frac{1}{2}} = 3$

This is because:

$9^{\frac{1}{2}} \times 9^{\frac{1}{2}} = 9^1$

We know this is true from the earlier rules

$3 \times 3 = 9$

So $9^{\frac{1}{2}} = 3$