

## Indices Worksheet

Note  $x^{\frac{1}{2}} \equiv \sqrt{x}$ ,  $x^{\frac{1}{n}} \equiv \sqrt[n]{x}$ , and  $x^{-n} \equiv \frac{1}{x^n}$ . One of the most common errors is thinking  $\frac{1}{2x^3}$  is the same as  $2x^{-3}$ ; it is not! The correct version is  $\frac{1}{2x^3} = \frac{x^{-3}}{2}$ .

Simplify fully:

1.  $4^{\frac{1}{2}}$ .

□

2.  $\frac{1}{2}$ .

□

3.  $\left(\frac{1}{9}\right)^{\frac{1}{2}}$

Solve

1.  $6x + x^{-1} = 5$ .

$x = \frac{1}{2}$  or  $x = \frac{1}{3}$

3.  $x^2 - 64x^{-1} = 0$ .

2.  $x^2 + 27x^{-1} = 0$ .

4.  $x - x^{-2} = 0$ .