

## Solving exponential equations that do not require the use of logarithms WS

Solve each equation by first rewriting each side using a common base.

$$1) \left(\frac{1}{64}\right)^{v+1} = 16$$

$$2) \left(\frac{1}{243}\right)^{n+1} = 27$$

$$3) 64^{-3v} = \frac{1}{16}$$

$$4) 16^{-2v} = 8$$

$$5) \left(\frac{1}{6}\right)^{2n} = 216$$

$$6) 16^{3m+1} = 4^{3m}$$

$$7) 25^{-3m-3} = 125^{-m-1}$$

$$8) 25^{3v} = 625^{3v}$$

$$9) 243^{-3r-2} = \frac{1}{27}$$

$$10) 32^{2b} = 2^4$$

$$11) 9^{-2n} = \frac{1}{27}$$

$$12) 243^{1-2n} = 81^{3n+2}$$

$$13) 25^{-3m} = 125^{3m+3}$$

$$14) 4^{2m-2} = 64$$

$$15) \left(\frac{1}{4}\right)^{-k} = 16$$

$$16) 16^{-2p-3} = 4$$

$$17) 27^{v-1} = 9$$

$$18) 36^{-2k} = 216^{-2k+3}$$

$$19) 9^{a+1} = 243$$

$$20) 27^{-v} = \frac{1}{3}$$