

### Quiz: Exponents and radicals

*Do these problems without a calculator. Answer in the space provided.*

Simplify, leaving no negative or fractional exponents.

1.  $3x^{-2}y \times 2x^3y^{-1}$

2.  $\sqrt{a^4b}$

3.  $x^{\frac{1}{2}} \times \left(\frac{y}{z^3}\right)^2$

4.  $(a^6b^2)^{\frac{1}{3}} \div a^{-1}b$

5. Let  $f(x) = \sqrt{x} - 16$  and  $g(x) = (x - 4)^4$

(a) Find  $(f \circ g)(x)$

(b) Find  $f^{-1}(x)$

6. The function  $f(x) = e^x$  is shown on the graph. Sketch  $g(x) = -f(x - 4) + 3$ . Plot and label the asymptotes.

