



15th March

The function f is such that

$$f(x) = 4x - 7$$

solve

$$f(x) = 17$$

$$4x - 7 = 17$$

$$4x = 24$$

$$x = 6$$

Find

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

$$y = 4x - 7$$

$$y + 7 = 4x$$

$$x = \frac{y + 7}{4}$$

$$f^{-1}(x) = \frac{x + 7}{4}$$

Work out

$$27^{-\frac{2}{3}}$$

$$\frac{1}{9}$$

a is directly proportional to \sqrt{c} .
 w is inversely proportional to a^3 .

When $c = 49$, $a = 35$
 When $a = 2$, $w = 16$.

Find the value of w when $c = 4$.

$$a \propto \sqrt{c}$$

$$a = k\sqrt{c}$$

$$35 = k \times 7$$

$$k = 5$$

$$a = 5\sqrt{c}$$

$$w \propto \frac{1}{a^3}$$

$$w = \frac{k}{a^3}$$

$$16 = \frac{k}{3}$$

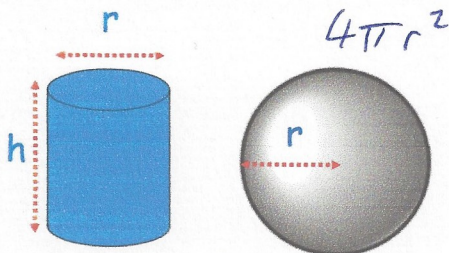
$$k = 128$$

$$w = \frac{128}{a^3}$$

$$c = 4$$

$$a = 5 \times \sqrt{4} = 10$$

$$w = \frac{128}{10^3} = 0.128$$



The surface area of the cylinder is equal to the surface area of the sphere.

Express h in terms of r

$$h = 4r - \frac{1}{2}r$$

$$h = 3\frac{1}{2}r$$

$$\frac{1}{2}\pi r^2 + \pi r h = 4\pi r^2$$

$$\frac{1}{2}r + h = 4r$$