



The function  $f$  is such that

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

solve

$$f(x) = 17$$

$$4x - 7 = 17$$

$$4x = 24$$

$$x = 6$$

Find

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

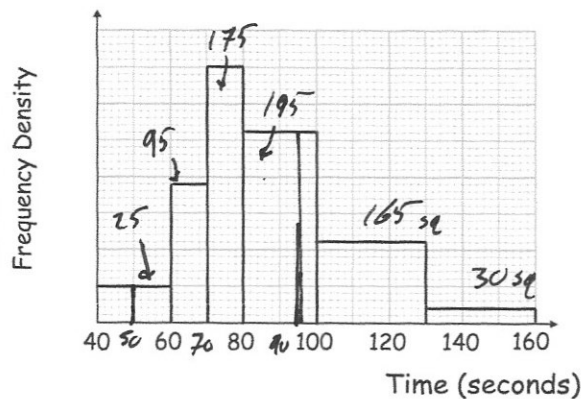
$$y = 4x - 7$$

$$y + 7 = 4x$$

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

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

The histogram shows how long it took the students in years 10 and 11 to solve a puzzle.



117 students took longer than 100 seconds to solve the puzzle.

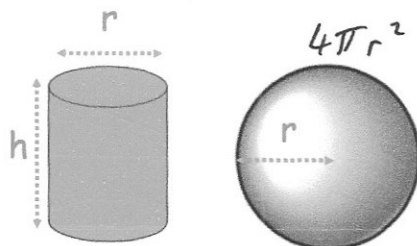
Calculate an estimate of the number of students who took between 50 and 95 seconds to solve the puzzle.

$$195 \text{ squares} = 117 \text{ students}$$

$$1 \text{ student} = 1.6 \text{ squares}$$

$$490 \text{ squares between } 50 \text{ and } 95$$

$$490 \div 1.6 = 294$$



$$2\pi\left(\frac{1}{2}r\right)^2 + \pi rh$$

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

Express  $h$  in terms of  $r$

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

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

$$\text{or } h = \frac{7}{2}r$$

$$2\pi\left(\frac{1}{2}r\right)^2 + \pi rh$$

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

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