

Question 19

$$\sqrt{m+3} - 10 = -5$$

Add 10 to both sides

$$\sqrt{m+3} - 10 + 10 = -5 + 10$$

$$\sqrt{m+3} = 5$$

Square both sides

$$(\sqrt{m+3})^2 = 5^2$$

Expand $(\sqrt{m+3})^2 = m+3$

$$(\sqrt{m+3})^2$$

$$\sqrt{a} = a^{\frac{1}{2}}$$

$$= [(m+3)^{\frac{1}{2}}]^2$$

Apply exponent rule $(a^b)^c = a^{bc}$

$$= (m+3)^{\frac{1}{2} \cdot 2}$$

$$\frac{1}{2} \cdot 2 = 1$$

$$\frac{1}{2} \cdot 2$$

Multiply fractions $\frac{a \times b}{c} = \frac{a \times b}{c} = \frac{1 \times 2}{2}$

Cancel the common factor: $2 = 1$

$$= m+3$$

$$m+3 = 25$$

Solve $m+3 = 25$ $m = 22$

$$m+3 = 25$$

Subtract 3 from both sides

$$m+3-3 = 25-3$$

Simplify $m = 22$

Verify

If $m = 22$ then $\sqrt{m+3} - 10 = -5$

therefore $m = 22$