

Engineering summer work

Q1.

(a) Simplify $y^4 \times y^7$

Answer _____

(1)

(b) Simplify $w^{12} \div w^4$

Answer _____

(1)

(c) Rearrange $y = 3x + 2$ to make x the subject.

Answer _____

(2)

(Total 4 marks)

Q2.

Solve $6x - 5 = 2x + 13$

$x =$ _____

(Total 3 marks)

Q3.

Expand and simplify $(2x + 1)(3x + 4)$

Answer _____

(Total 3 marks)

Q4.

(a) Multiply out and simplify $(x - 6)(x - 5)$

Answer _____

(2)

(b) Simplify fully $2a^2b^3 \times 4a^5b^6$

Answer _____

(2)

(Total 4 marks)

Q5.

(a) Solve $4(x + 3) = 17$

Answer $x =$ _____

(3)

(b) Solve the inequality $2n - 1 > 5$

Answer _____

(2)

Q6.

- (a) Expand and simplify $(x + 6)^2$

Answer _____

(2)

- (b) Expand and simplify $9w(3x - 4y) - 5w(x + y)$

Answer _____

(4)

(Total 6 marks)

Q7.

- (a) Expand $w(w - 4)$

Answer _____

(2)

- (b) Factorise $8t + 24$

Answer _____

(1)

- (c) Expand and simplify $(y + 7)(y - 2)$

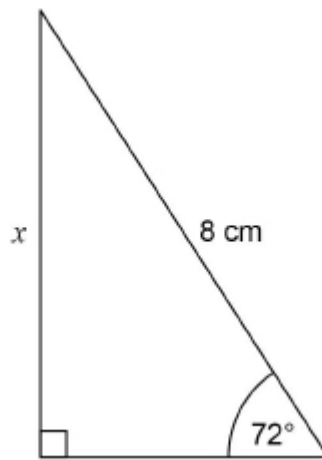
Answer _____

(2)

(Total 5 marks)

Q8.

Use trigonometry to work out the length x .



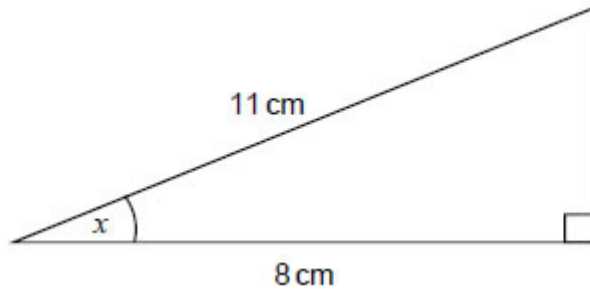
Not drawn
accurately

Answer _____ cm

(Total 2 marks)

Q9.

- (a) Work out the size of angle x .

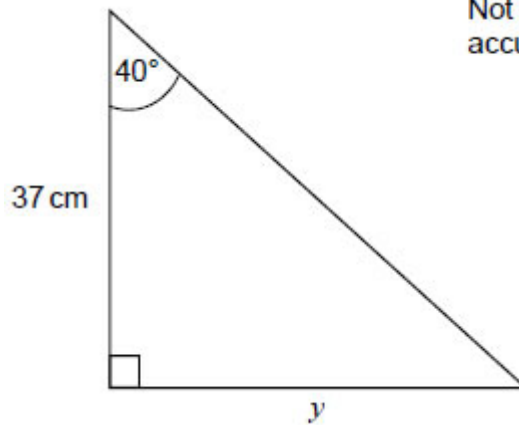


Not drawn accurately

Answer _____ degrees

(2)

- (b) Work out length y .



Not drawn accurately

Answer _____ cm

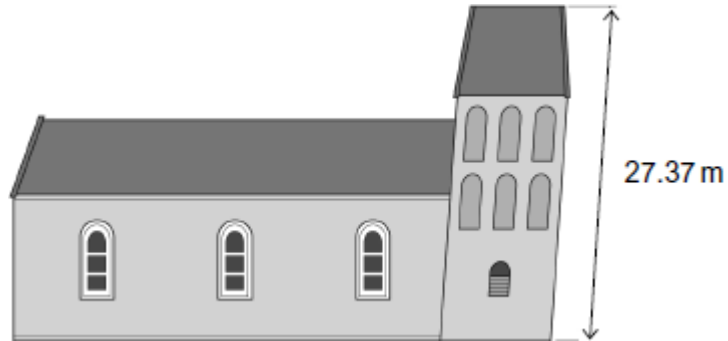
(2)

(Total 4 marks)

Q10.

A church tower leans at an angle.

Not drawn accurately



The diagram below shows the angle, y , at which the tower leans.

Not drawn accurately



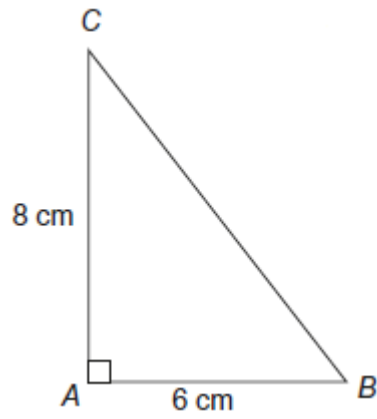
Work out angle y .

Answer _____ degrees
(Total 3 marks)

Q11.

Work out length BC .

Not drawn accurately

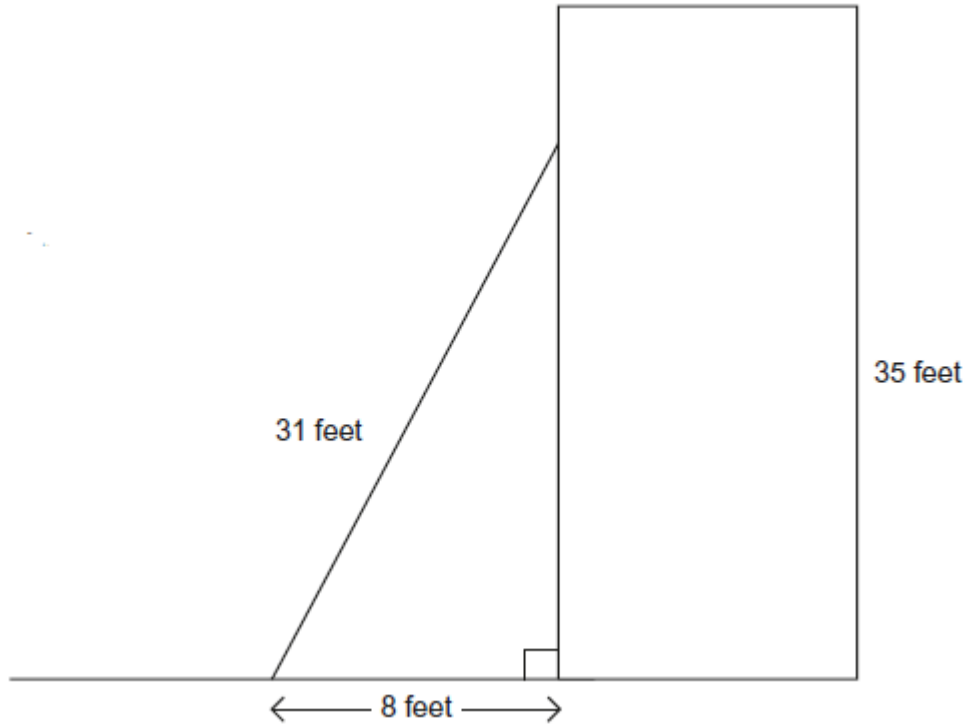


Answer _____ cm
(Total 3 marks)

Q12.

A ladder of length 31 feet is leaning against a wall as shown.
The foot of the ladder is 8 feet from the wall.
The wall is 35 feet tall.

Not drawn accurately



Work out the distance from the top of the ladder to the top of the wall.

Answer _____ feet
(Total 4 marks)