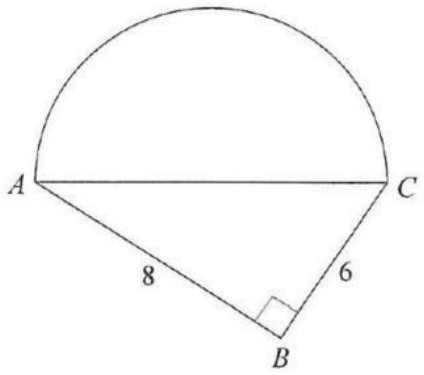
11. The template below consists of a semicircle and a right-angled triangle.

$AB = 8$, $BC = 6$ and $\angle ABC = 90°$.



Calculate, using $\pi = 3.142$ **where necessary**,

(a) the length of the diameter AC, [2]

(b) the area of the triangle ABC, [2]

(c) the area of the semicircle, [3]

(d) the total area of the template. [1]

11. Econo Car Rentals charges the customers for distances travelled as follows:

Fixed charge for distance of 70 km or less	Additional charge for distance over 70 km
\$62	\$1.60 per km

(a) Determine the cost of renting a car for a distance of

(i) 58 km [1]

(ii) 136 km [3]

Distance traveled in excess of 70 km

Amount paid for exceeding 70 km

Cost of Traveling 136 km

After returning a car rental, a customer was charged a total of \$118.

(b) Calculate the distance travelled in the car. [3]

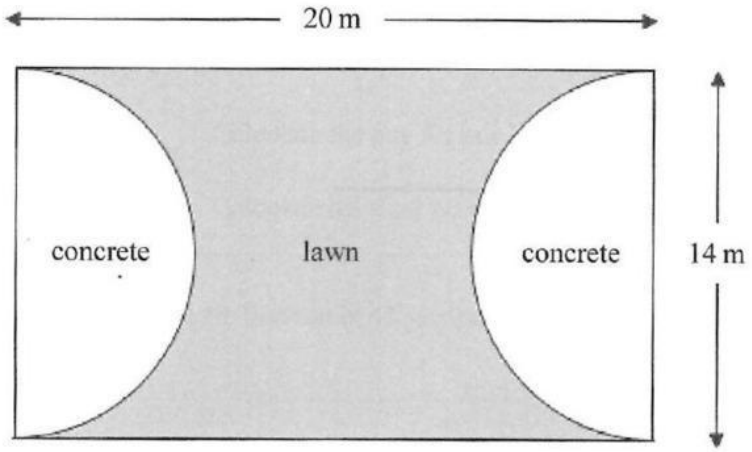
Amount paid for exceeding 70 km

Distance traveled in excess of 70 km

Total Distance traveled

LIVEWORKSHEETS

11. The rectangular playground design, shown below, consists of a lawn and two equal semi-circles of concrete.



NOT TO SCALE

Use $\pi = \frac{22}{7}$ where necessary in this question.

(a) (i) Calculate the perimeter of the lawn. [2]

Perimeters of Curved Parts

Perimeters of Straight Parts

Total Perimeter

(ii) Fencing is sold at \$40.75 per metre. Calculate the cost of fencing the lawn. [2]

(b) Calculate the area of the lawn. [3]

Rectangular Area

Areas of Circular Portions

Area of Lawn

11. (a) Factorise $63m^3n + 28mn^2 - 7mn$ [3]

(b) Simplify:

(i) $3(2x - 3) - 4(x + 7)$ [3]

Expression after removal of Brackets

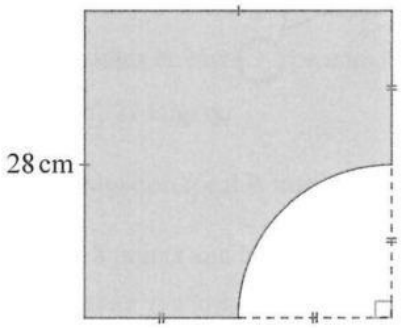
Simplified Expression

LIVEWORKSHEETS

(ii) $\left(\frac{2p^3}{q}\right)^3$ [3]

Simplified Fraction

11.



NOT TO SCALE

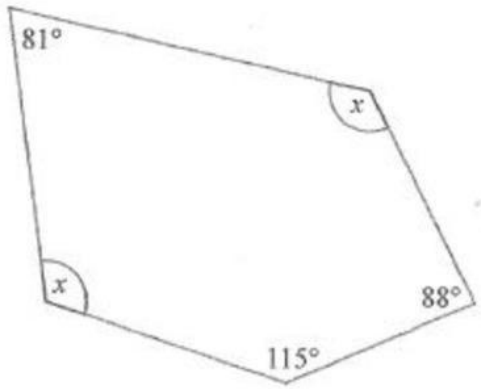
Using $\pi = \frac{22}{7}$, find the perimeter of the shaded region above. [4]

Perimeters of Curved Parts

Perimeters of Straight Parts

Total Perimeter

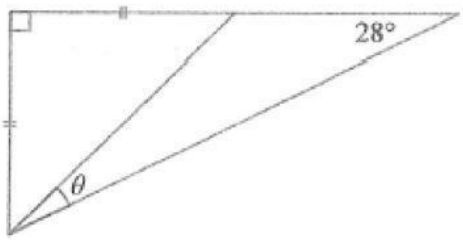
11. (a)



NOT TO SCALE

Given the irregular pentagon above, find the size of angle x. [4]

(b)

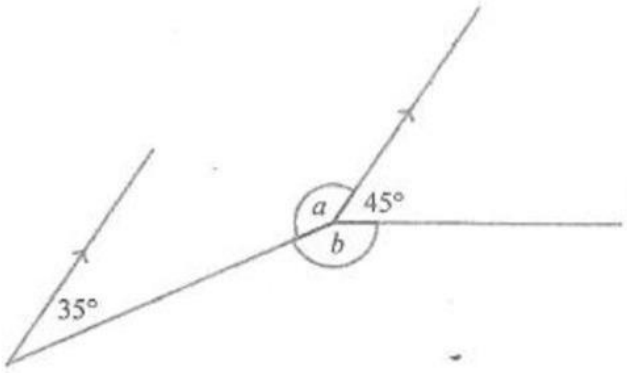


NOT TO SCALE

Find the size of angle θ in the above diagram. [2]

LIVEWORKSHEETS

(c)



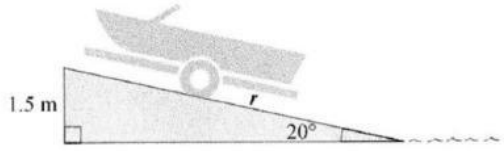
NOT TO SCALE

Find the sizes of angles a and b in the above diagram. [2]

a =

b =

11.



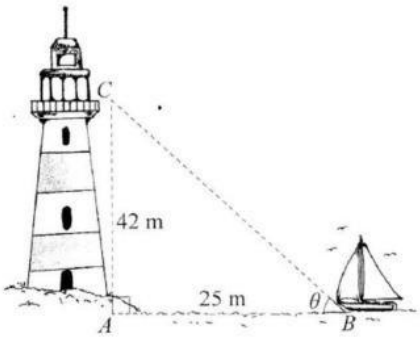
NOT TO SCALE

A boat ramp 1.5 m high is at a slope of 20°.

(a) Calculate the length (r) of the ramp, correct to 1 decimal place. [3]

Trig Ratio Needed =

Length of Ramp =



NOT TO SCALE

A boat is 25 m offshore as shown above.

C is the lookout point of the lighthouse 42 m above ground.

(b) Calculate the size of angle θ, correct to the nearest degree. [3]

Trig Ratio Needed =

Angle of Elevation =

LIVEWORKSHEETS