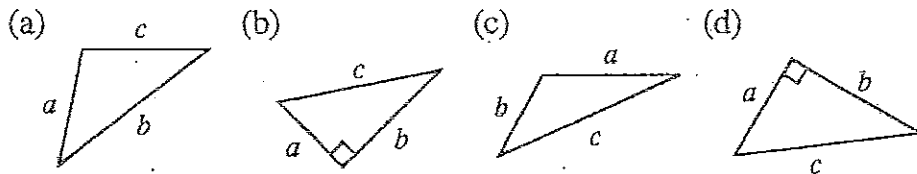


Note: Only turn back to page number if you have difficulty

Page

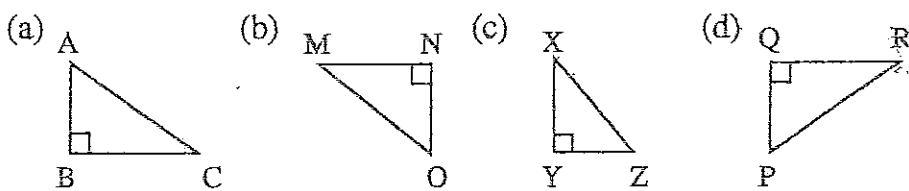
Q1. Pythagoras' theorem does not apply to all triangles. In which of the triangles below does  $c^2 = a^2 + b^2$  apply?

26



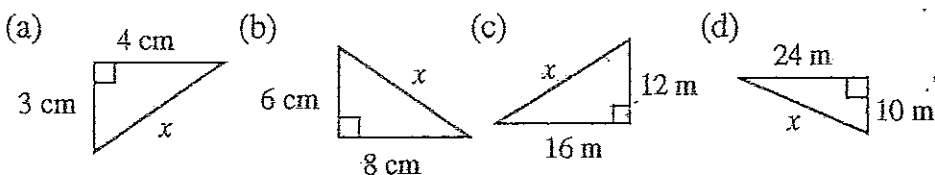
Q2. Use  $c^2 = a^2 + b^2$  to write an equation which shows the relationship between the sides of each triangle:

26



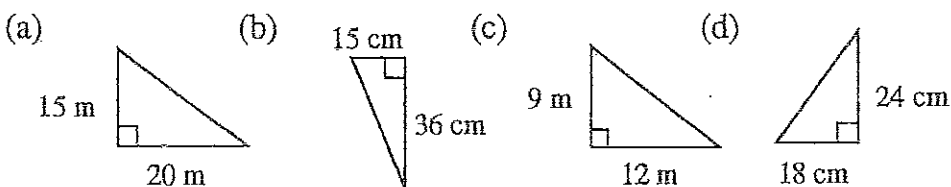
Q3. Use Pythagoras' theorem to find  $x$ :

27



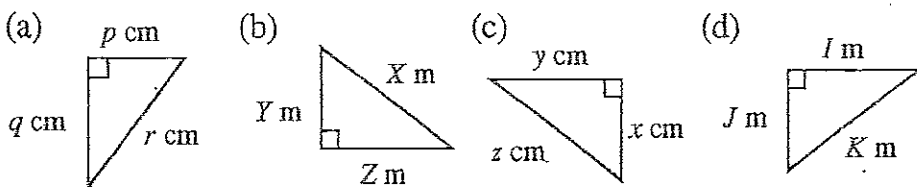
Q4. Find the length of the hypotenuse in each of the following triangles:

27



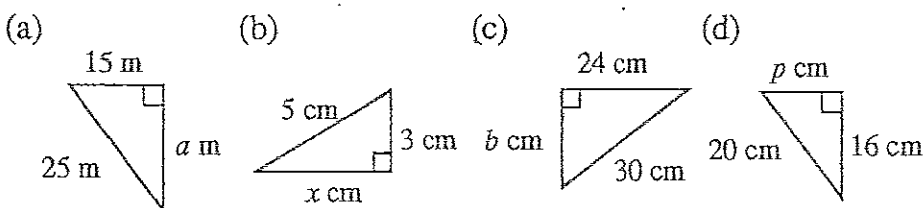
Q5. Write an equation which shows how the sides of each triangle are related to each other:

28

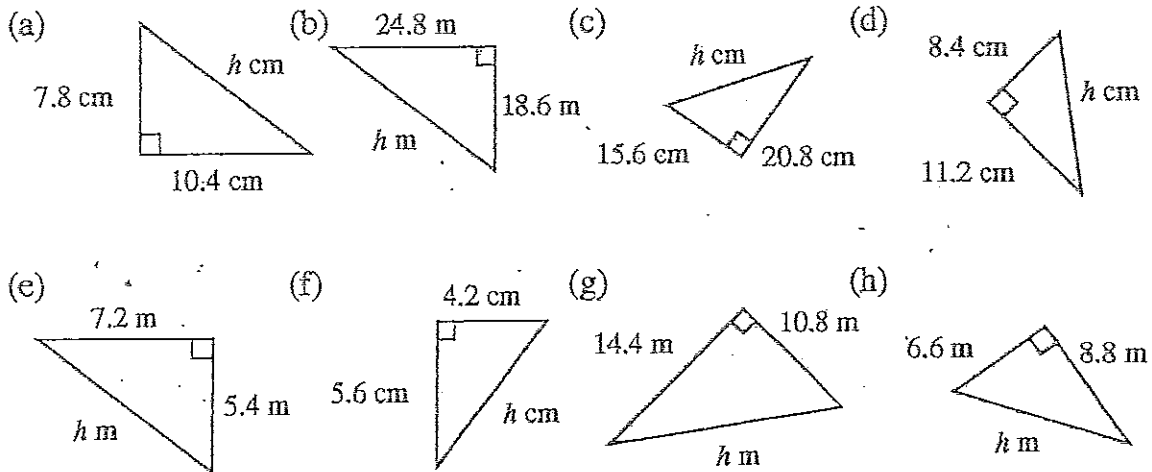


Q6. Find the length of the side marked with a pronumeral:

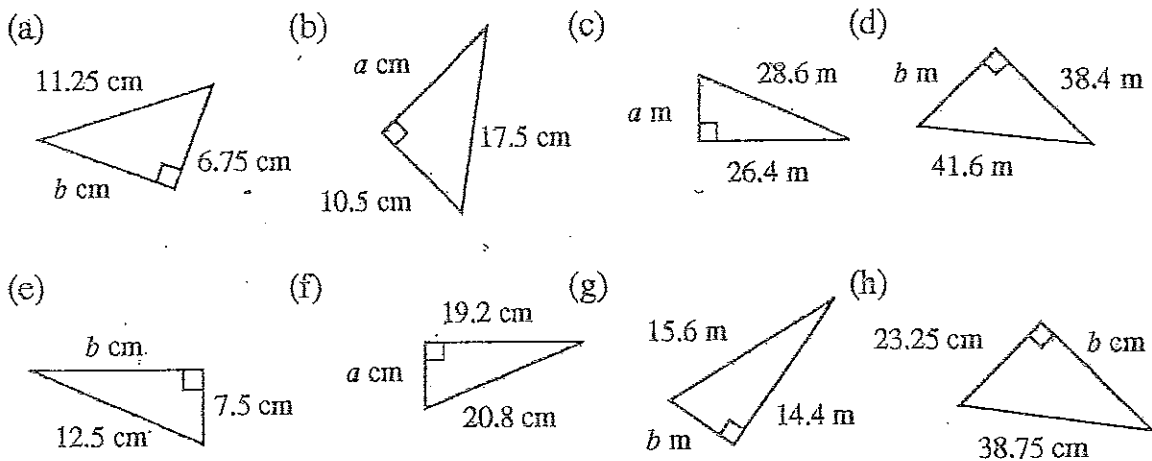
28



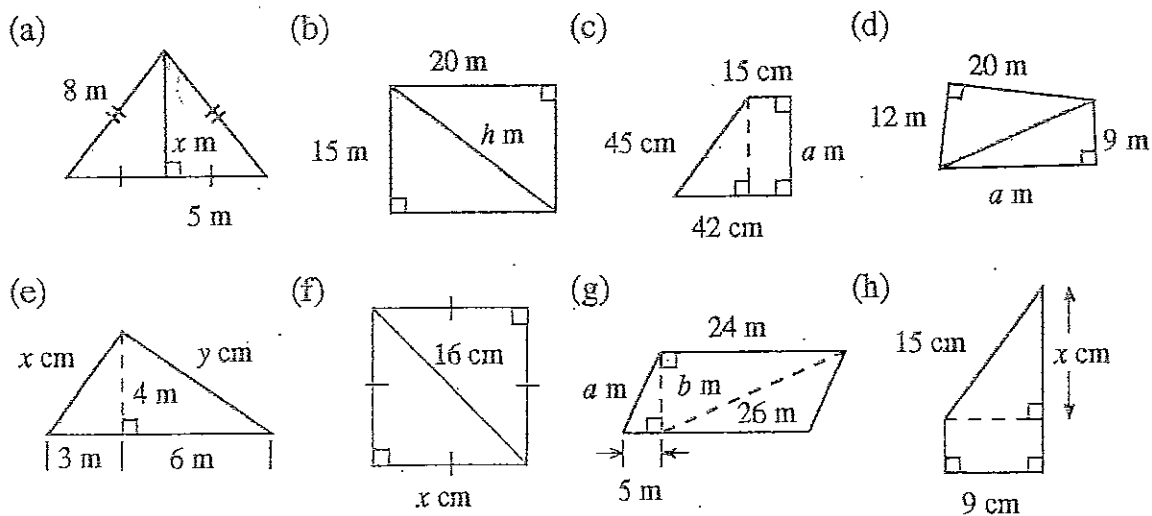
Q1. Find the length of the hypotenuse in each of the following:



Q2. Find the value of the pronumeral:



Q3. Find the value of the pronumeral correct to 1 decimal place:



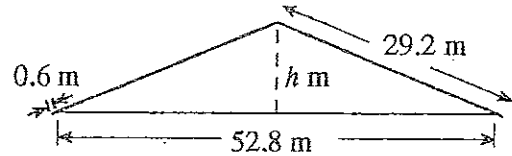
Q4. Are the following triangles right-angled?

- (a) 24 cm, 32 cm and 40 cm
- (b) 10 m, 14 m and 17 m
- (c) 25.8 m, 34.4 m and 43 m
- (d) 15 m, 15 cm and 30 cm

Q1. A boat leaves port and sails 7 nautical miles due west. It then changes course and sails 16.8 nautical miles due north. How far is the boat from port?

Q2. Two trees 20 m apart are of different heights, one is 12 m tall and the other is 60 m. What is the distance between the tops of the trees?

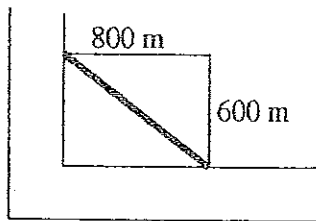
Q3. A roof is constructed of rafters of length 29.2 m. The length of the ceiling is 52.8 m. What is the height of the roof if the overhang of the rafter is 0.6 m?



Q4. Two streets are at right angles to each other. Two cars leave the intersection at the same time, car A driving down one road at 72 km/h and car B driving at 54 km/h down the other road. After 20 minutes how far apart are the two cars?

Q5. A triangular prism has a volume of  $480 \text{ cm}^3$ . The cross section of the prism is an isosceles triangle with base 6 cm. The depth of the prism is 20 cm. Find the length of the longest side of the triangular cross section. (Answer correct to 2 d.p.)

Q6.



A rectangular park has roads on two of its sides. A path leads from one corner of the park to the opposite corner.

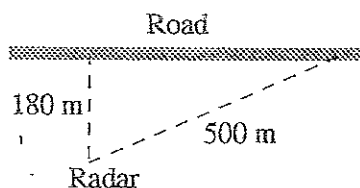
- (a) How much distance is saved by taking the path rather than walking around the park?
- (b) If I walk 50 m every minute what time will I save by taking the path?

Q7. A kite is flying so that it is 65 m high and above a point 57 m from the person holding the string. What is the length of the string correct to 3 decimal places?

Q8. The diagonals of a rhombus are 16 cm and 24 cm. What is the length of the side of the rhombus?

Q9. The sides of a rectangle are such that the width is three quarters the length. If the diagonal is 15 cm, find the length and width.

Q10. A radar, whose effective range is 500 m, is positioned 180 m from a straight road. What length of the road is under radar surveillance? (Answer to nearest m.)



## Level 1 — Pythagoras' Theorem

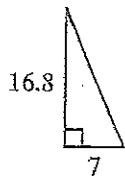
- Q1. (a) No (b) Yes (c) No (d) Yes.  
 Q2. (a)  $AC^2 = AB^2 + BC^2$  (b)  $MO^2 = MN^2 + NO^2$   
 (c)  $XZ^2 = XY^2 + YZ^2$  (d)  $PR^2 = QR^2 + QP^2$   
 Q3. (a) 5 cm (b) 10 cm (c) 20 m (d) 26 m  
 Q4. (a) 25 m (b) 39 cm (c) 15 m (d) 30 cm  
 Q5. (a)  $r^2 = q^2 + p^2$  (b)  $X^2 = Y^2 + Z^2$  (c)  $z^2 = x^2 + y^2$  (d)  $H^2 = I^2 + J^2$   
 Q6. (a) 20 m (b) 4 cm (c) 18 cm (d) 12 cm

## Level 2 — Pythagoras' Theorem

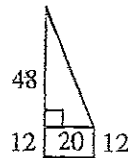
- Q1. (a) 13 cm (b) 31 m (c) 26 cm (d) 14 cm  
 (e) 9 m (f) 7 cm (g) 18 m (h) 11 m  
 Q2. (a) 9 cm (b) 14 cm (c) 11 m (d) 16 m  
 (e) 10 cm (f) 8 cm (g) 6 m (h) 31 cm  
 Q3. (a) 6.2 m (b) 25.0 m (c) 36.0 cm (d) 21.5 m  
 (e)  $x = 5$  m;  $y = 7.2$  m (f) 11.3 cm (g)  $a = 11.1$  m;  $b = 10.0$  m (h) 12 cm  
 Q4. (a) Yes (b) No (c) Yes (d) No

## Level 3 — Pythagoras' Theorem

Q1. 18.2 nautical miles

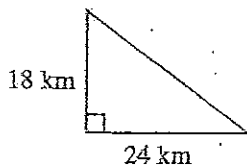


Q2. 52 m

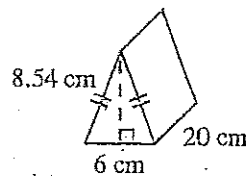


Q3. Height is 11 m.

Q4. 30 km

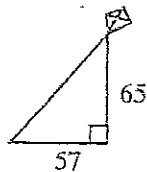


Q5. 8.54 cm

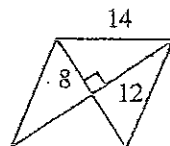


Q6. (a) 400 m  
(b) 8 minutes

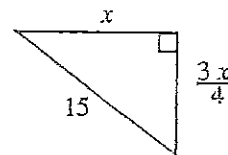
Q7. 86.452 m



Q8. 14.42 cm



Q9. 12 cm, 9 cm



Q10. 933 m