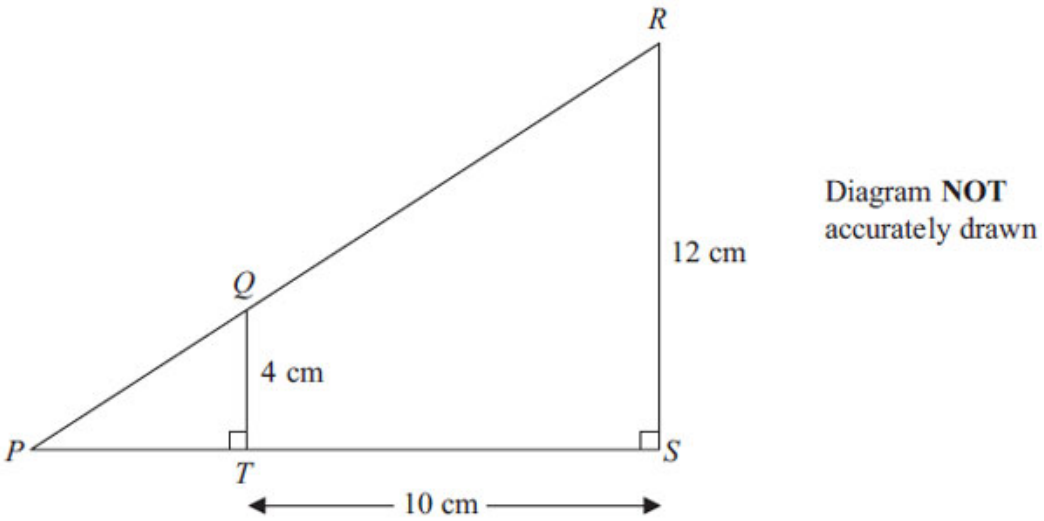
# Questions

Q1.




*PQR* and *PTS* are straight lines.
Angle *PTQ* = Angle *PSR* = 90°
*QT* = 4 cm
*RS* = 12 cm
*TS* = 10 cm

(a) Work out the area of the trapezium *QRST.*

. . . . . cm$^2$

**(2)**

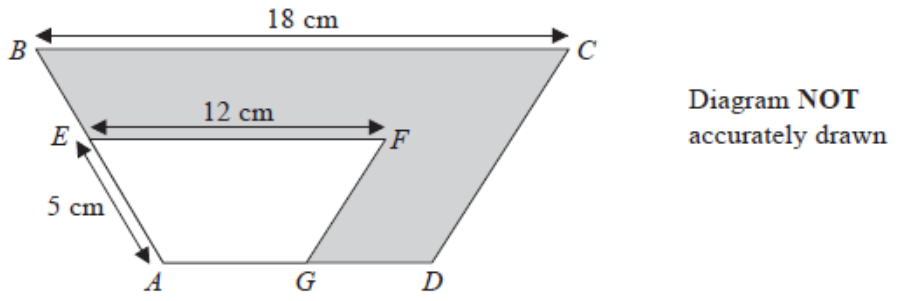
(b) Work out the length of *PT*.

. . . . . cm

**(3)**

**(Total for Question is 5 marks)**

Q2.




*ABCD* and *AEFG* are mathematically similar trapeziums.
*AE* = 5 cm
*EF* = 12 cm
*BC* = 18 cm

(a) Work out the length of *AB*.

..... cm

**(2)**

Trapezium *AEFG* has an area of 36 $cm^2$.

(b) Work out the area of the shaded region.

..... $cm^2$

**(3)**

**(Total for Question is 5 marks)**

Q3.

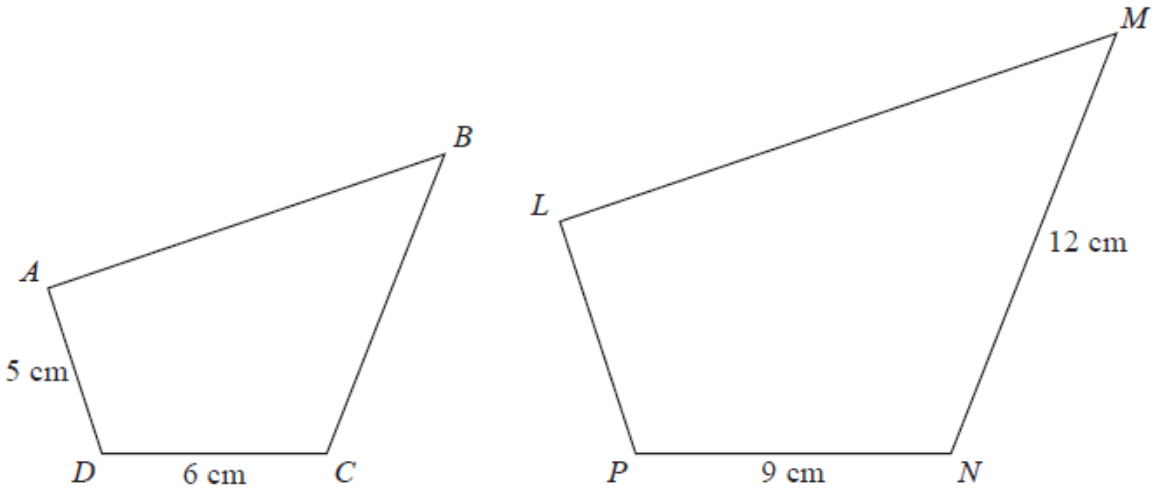



Diagram **NOT** accurately drawn

Quadrilaterals *ABCD* and *LMNP* are mathematically similar.

Angle *A* = angle *L*
Angle *B* = angle *M*
Angle *C* = angle *N*
Angle *D* = angle *P*

(a) Work out the length of *LP*.

.....cm

**(2)**

(b) Work out the length of *BC*.

.....cm

**(2)**

**(Total for Question is 4 marks)**

Q4.

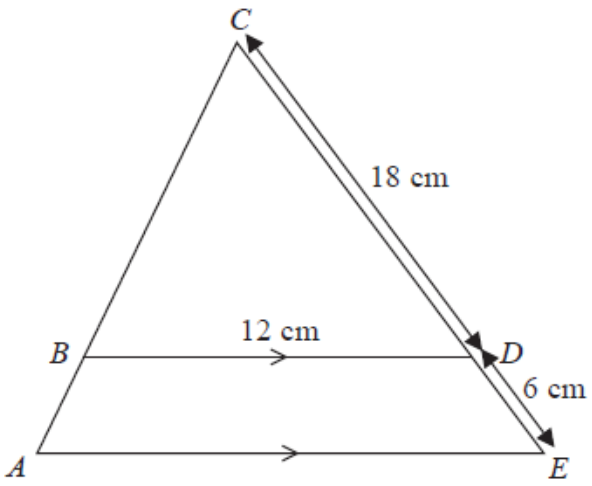



Diagram **NOT** accurately drawn

*ABC* and *CDE* are straight lines.
*BD* and *AE* are parallel.
*BD* = 12 cm, *CD* = 18 cm, *DE* = 6 cm.

Work out the length of *AE*.

..... cm

**(Total for question = 2 marks)**

Q5.

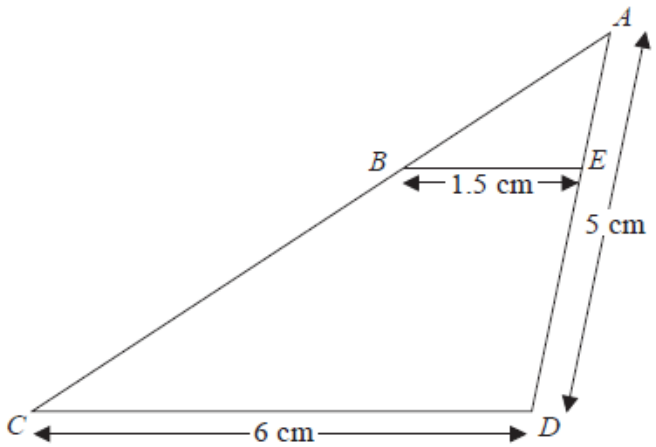



Diagram **NOT** accurately drawn

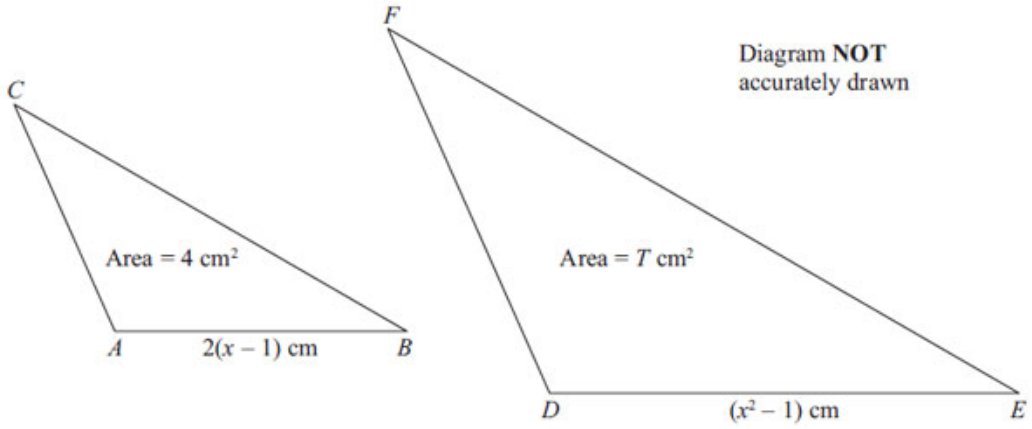
*ABC* and *AED* are straight lines.
*BE* and *CD* are parallel.
*BE* = 1.5 cm.
*CD* = 6 cm.
*AD* = 5 cm.

Calculate the length of *ED*.

..... cm

**(Total for question = 3 marks)**

Q6.




Triangles *ABC* and *DEF* are mathematically similar.

The base, *AB*, of triangle *ABC* has length $2(x - 1)$ cm
The base, *DE*, of triangle *DEF* has length $(x^2 - 1)$ cm

The area of triangle *ABC* is 4 $cm^2$
The area of triangle *DEF* is $T$ $cm^2$

Prove that

$$T = x^2 + 2x + 1$$

**(Total for Question is 4 marks)**

Q7.

*ABC* is a triangle.

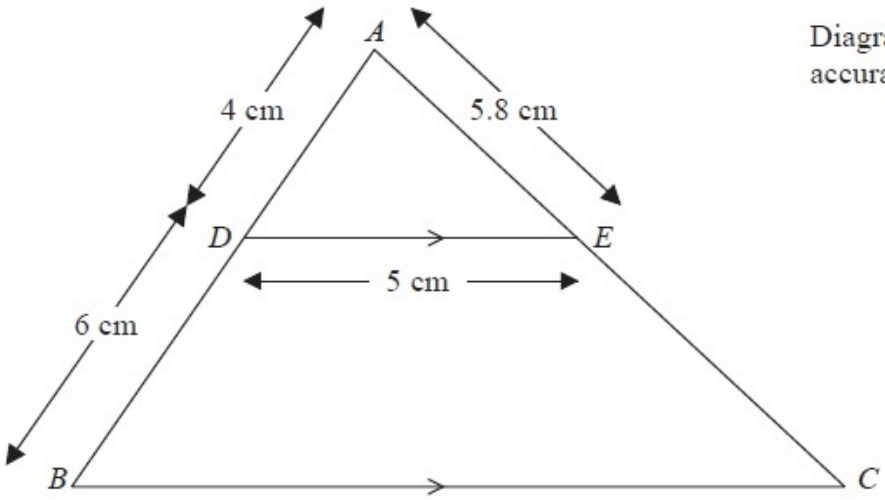



Diagram **NOT** accurately drawn

*D* is a point on *AB* and *E* is a point on *AC*.

*DE* is parallel to *BC*.

*AD* = 4 cm, *DB* = 6 cm, *DE* = 5 cm, *AE* = 5.8 cm.

Calculate the perimeter of the trapezium *DBCE*.

..... cm

**(Total for Question is 4 marks)**

Q8.

Steve has a photo and a rectangular piece of card.

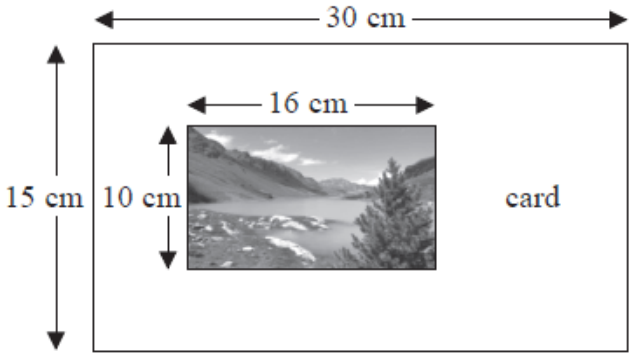
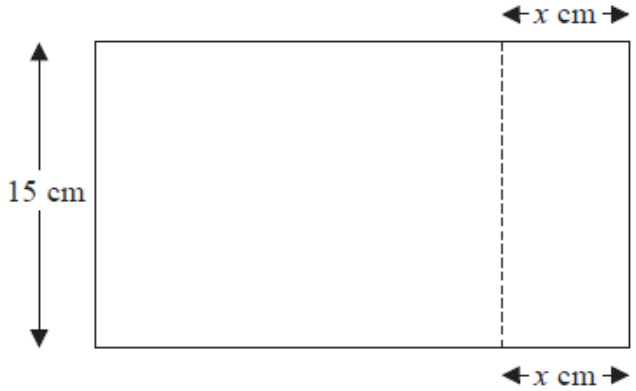



Diagram **NOT** accurately drawn

The photo is 16 cm by 10 cm.
The card is 30 cm by 15 cm.

Steve cuts the card along the dotted line shown in the diagram below.




Steve throws away the piece of card that is 15 cm by $x$ cm.
The piece of card he has left is mathematically similar to the photo.

Work out the value of $x$.

.....

**(Total for Question is 3 marks)**