Worksheet 9-06 Constructions in diagrams

1 As an individual, in a pair or as part of a group, use geometrical instruments to accurately construct the figures below, **or:**

2 Cut this page in half and give half to a partner. Each person takes turns at describing a figure to the other person unseen. The other person then constructs it as accurately as possible.

a

A

$75°$ $60°$

C 3 cm B

b

D E

4 cm

4 cm

$130°$ $50°$ F

G 5 cm

c

L

$80°$

N M

d

P 4 cm Q

1 cm

S $120°$

3.5 cm

R

e

T

22 cm

$100°$

V 30 cm U

f

W

4.2 cm

5 cm X

3.5 cm

$145°$

Z 3 cm Y

g

I

32 m

K $105°$ T

44 m

E

h

I 4 cm T

5 cm 5 cm

R

i

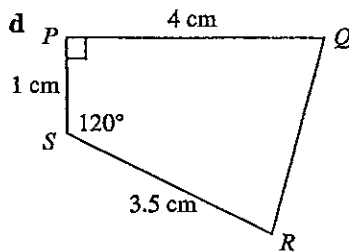2.5 cm A

R $35°$

$145°$

T

3 cm 6 cm

P

j

X

$45°$

6 cm

$70°$

Z Y

4.5 cm

k

29 mm O

E

53 mm

37 mm

N

l

L

A

6 cm 4 cm

$65°$ S

T 5.5 cm
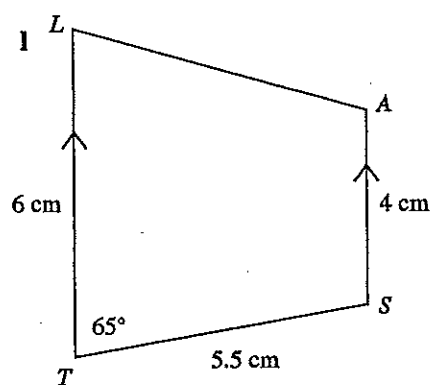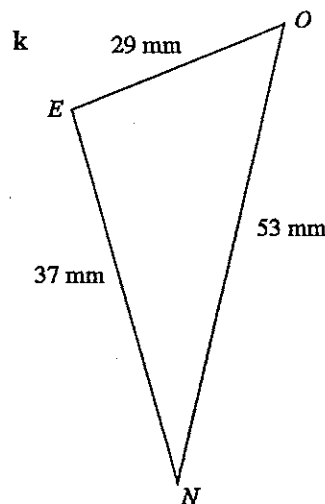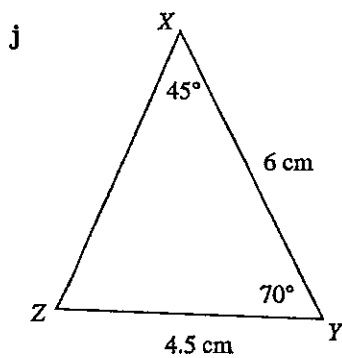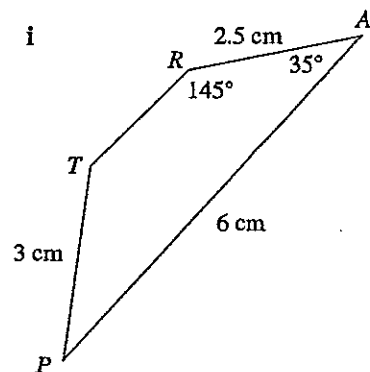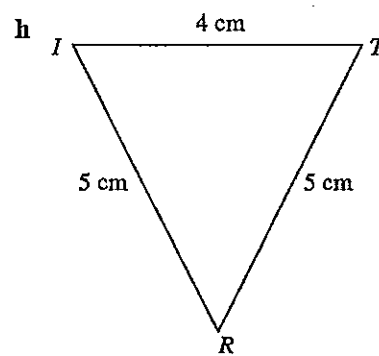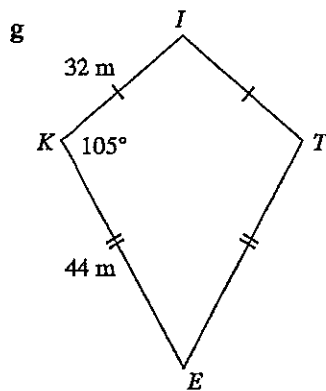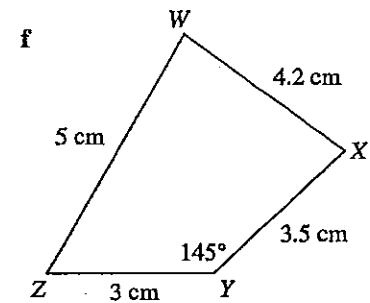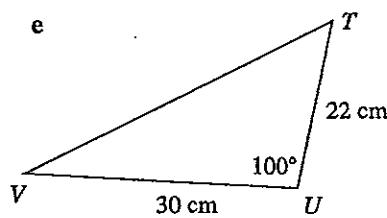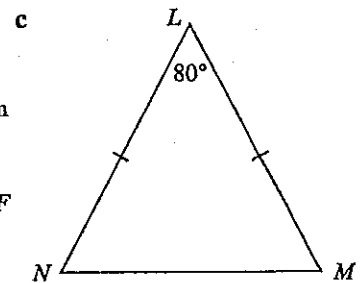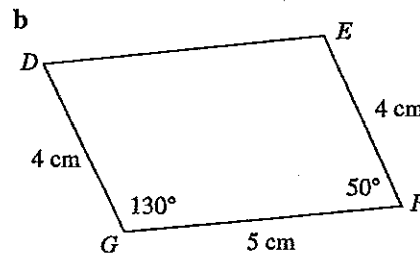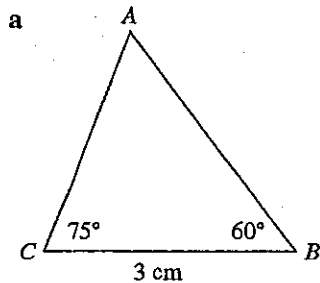
Use geometrical instruments to construct each of the following figures from its description. Make a rough sketch on a sheet of paper first.

1 Construct $\triangle ABC$, where $a = 4$ cm, $c = 3.5$ cm and $\angle B = 90°$.

2 Construct the quadrilateral $PQRS$, where $PQ = 5$ cm, $PS = 6$ cm, $\angle SPQ = 100°$, $\angle PSR = 85°$ and $\angle PQR = 60°$.

3 Construct the isosceles trapezium $FGHI$, where $FG \parallel IH$, $FG = 8$ cm, $GH = 3$ cm, $\angle IFG = \angle FGH = 55°$.

4 Construct the isosceles triangle $\triangle XYZ$, where $XY = 5$ cm and $XZ = YZ = 4$ cm.

5 Construct $\triangle JKL$, where $j = 53$ mm, $\angle L = 115°$ and $\angle K = 20°$.

6 Construct the quadrilateral $TUVW$, where $TU = 35$ mm, $UV = 27$ mm, $WV = 60$ mm, $TW = 49$ mm and $\angle TWV = 66°$.

Try drawing these!

1 A triangle has sides of 4 cm and 5 cm and an angle of 30°. Draw some of the triangles that this could describe.

2 A triangle has a side of 5 cm and angles of 90° and 35°. Draw some of the triangles that this could describe.

3 An isosceles triangle has a side of 5 cm and an angle of 44°. Draw some of the triangles that this could describe.

4 A triangle has one axis of symmetry and a side of 6 cm. Draw some of the triangles that this could describe.

5 A quadrilateral has sides of 4 cm and 6 cm, and angles of 70° and 60°. Draw some of the quadrilaterals that this could describe.

6 A parallelogram has a side of 6 cm and an angle of 45°. Draw some of the parallelograms that this could describe.

7 A kite has one side of 6 cm and one angle of 110°. Draw some of the kites that this could describe.

8 A rhombus has a side of 4 cm and an angle of 50°. Draw one such rhombus. Is it possible to draw more than one? Why or why not?

9 For each of Questions 1 to 7, work out how many possibilities there are. How do you know you've covered all of them?