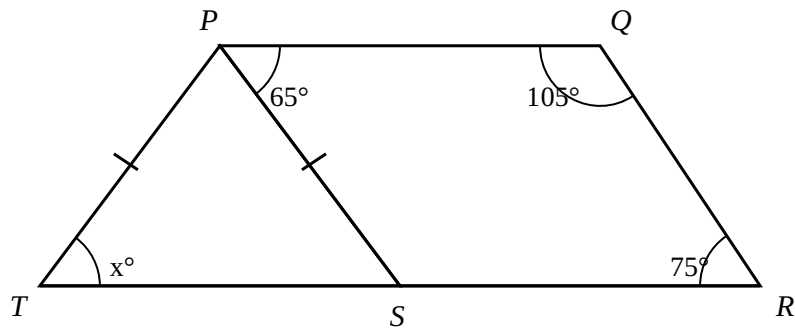


GEOMETRY: ANGLES IN POLYGONS & TRIANGLES**Best Guess Mastery Worksheet (Target Grade 4/5)****I Do**

The diagram shows quadrilateral $PQRS$ and isosceles triangle PST , where $PT = PS$.



TSR is a straight line.

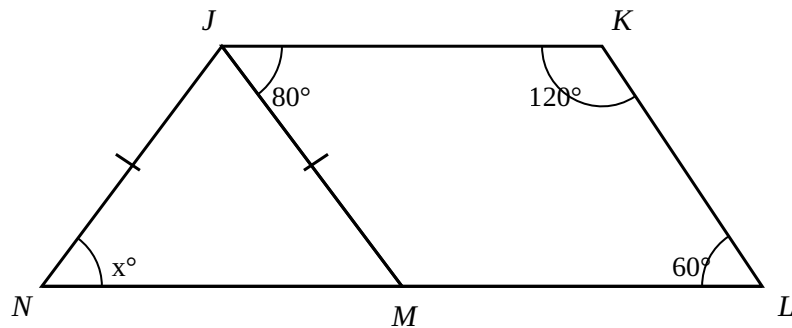
Work out the value of x .

Give a reason for each stage of your working.

(4)

We Do

The diagram shows quadrilateral $JKLM$ and isosceles triangle JMN , where $JN = JM$.



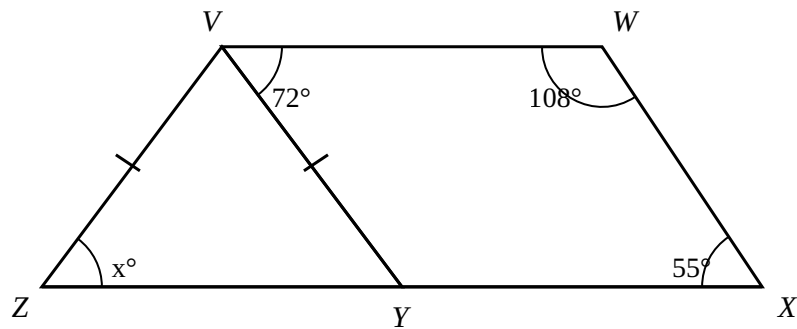
NML is a straight line.

Work out the value of x .

Give a reason for each stage of your working.

GEOMETRY: ANGLES IN POLYGONS & TRIANGLES**Best Guess Mastery Worksheet (Target Grade 4/5)****You Do 1**

The diagram shows quadrilateral $VWXY$ and isosceles triangle VYZ , where $VZ = VY$.



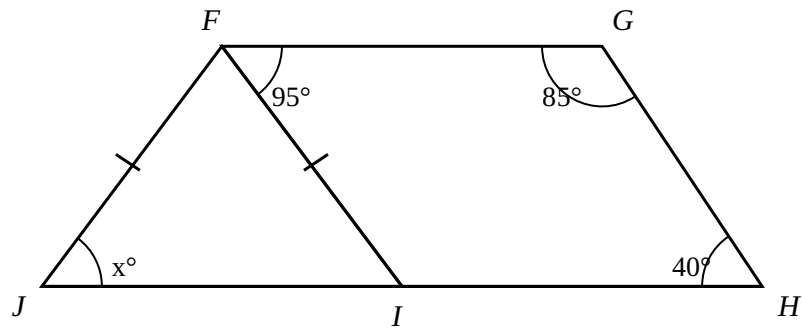
ZYX is a straight line.

Work out the value of x .

Give a reason for each stage of your working.

You Do 2

The diagram shows quadrilateral $FGHI$ and isosceles triangle FIJ , where $FJ = FI$.



JIH is a straight line.

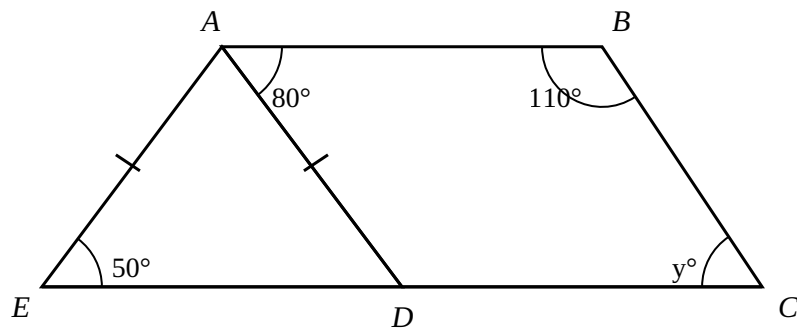
Work out the value of x .

Give a reason for each stage of your working.

(4)

GEOMETRY: ANGLES IN POLYGONS & TRIANGLES**Best Guess Mastery Worksheet (Target Grade 5/6)****Challenge 1**

The diagram shows quadrilateral $ABCD$ and isosceles triangle ADE , where $AE = AD$.



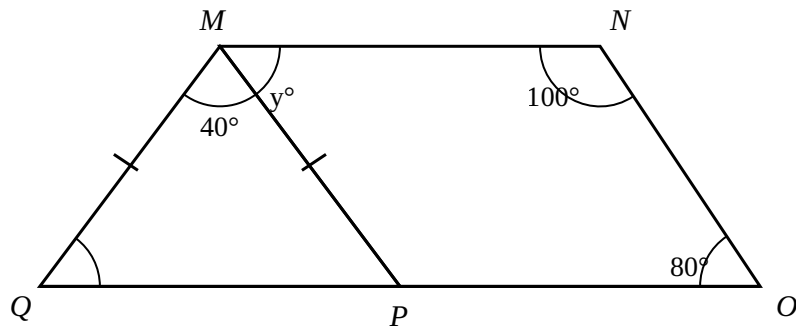
EDC is a straight line.

Work out the value of y .

Give a reason for each stage of your working.

Challenge 2

The diagram shows quadrilateral $MNOP$ and isosceles triangle MPQ , where $MQ = MP$.



QPO is a straight line.

Work out the value of y .

Give a reason for each stage of your working.

Answers & Worked Solutions

I Do:

1. $\angle PSR = 360^\circ - (65^\circ + 105^\circ + 75^\circ) = 115^\circ$ (Angles in a quadrilateral sum to 360°)
2. $\angle PST = 180^\circ - 115^\circ = 65^\circ$ (Angles on a straight line sum to 180°)
3. $x = 65$ (Base angles of an isosceles triangle are equal)

We Do:

1. $\angle JML = 360^\circ - (80^\circ + 120^\circ + 60^\circ) = 100^\circ$ (Angles in a quadrilateral sum to 360°)
2. $\angle JMN = 180^\circ - 100^\circ = 80^\circ$ (Angles on a straight line sum to 180°)
3. $x = 80$ (Base angles of an isosceles triangle are equal)

You Do 1:

1. $\angle WZY = 360^\circ - (72^\circ + 108^\circ + 55^\circ) = 125^\circ$ (Angles in a quadrilateral sum to 360°)
2. $\angle WZV = 180^\circ - 125^\circ = 55^\circ$ (Angles on a straight line sum to 180°)
3. $x = 55$ (Base angles of an isosceles triangle are equal)

You Do 2:

1. $\angle FGH = 360^\circ - (95^\circ + 85^\circ + 40^\circ) = 140^\circ$ (Angles in a quadrilateral sum to 360°)
2. $\angle FJI = 180^\circ - 140^\circ = 40^\circ$ (Angles on a straight line sum to 180°)
3. $x = 40$ (Base angles of an isosceles triangle are equal)

Challenge 1:

1. $\angle ADE = 50^\circ$ (Base angles of an isosceles triangle are equal)
2. $\angle ADC = 180^\circ - 50^\circ = 130^\circ$ (Angles on a straight line sum to 180°)
3. $y = 360^\circ - (80^\circ + 110^\circ + 130^\circ) = 40$ (Angles in a quadrilateral sum to 360°)

Challenge 2:

1. $\angle MQP$ and $\angle MPQ = (180^\circ - 40^\circ) \div 2 = 70^\circ$ (Angles in a triangle sum to 180° & base angles are equal)
2. $\angle MPO = 180^\circ - 70^\circ = 110^\circ$ (Angles on a straight line sum to 180°)
3. $y = 360^\circ - (100^\circ + 80^\circ + 110^\circ) = 70$ (Angles in a quadrilateral sum to 360°)