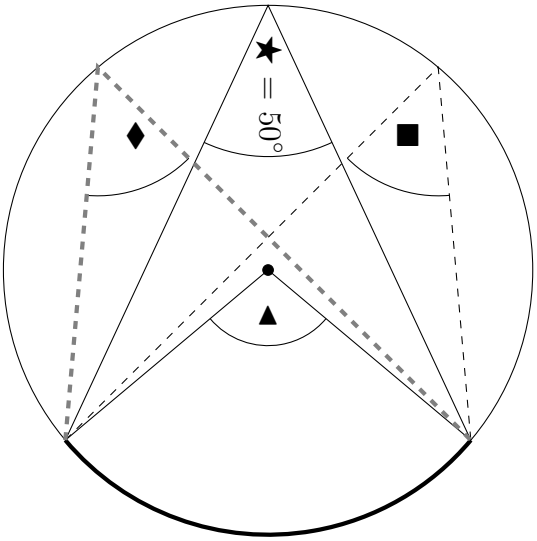
1. "The angle at the centre is twice the angle at the circumference from the same arc" is a rule to find missing angles in circles.

   (i) Complete the missing angles ▲, ■, ♦ and ♠



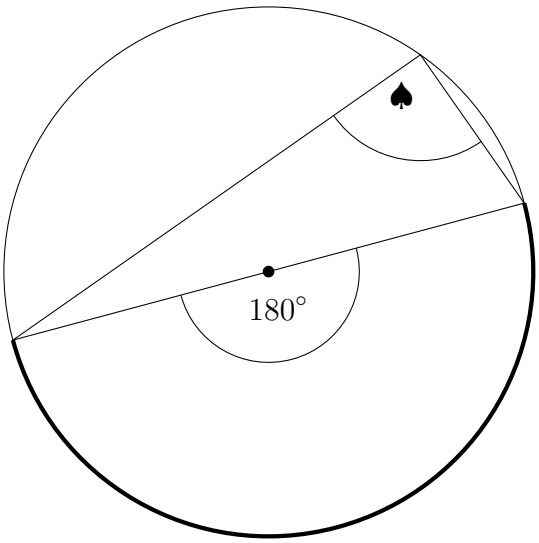
★ = 50°

▲ = ...°

■ = ...°

♦ = ...°

♠ = ...°



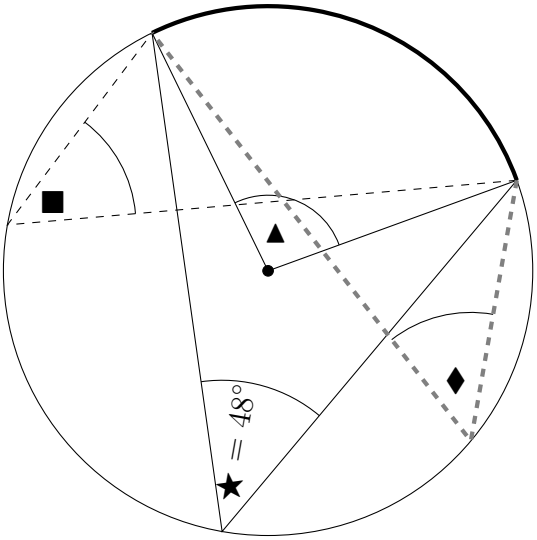
   (ii) Complete: A quicker way to work out ■ and ♦, without bothering to work out ▲ and having to write the rule "The angle at the centre is twice the angle at the circumference from the same arc" is to use the rule:

   "Angles at the circumference from the same arc are ....."

   (iii) Complete: The rule **"Angle in a semi-circle = ... °"** saves having to write "The angle at the centre = 180° because the diameter is a straight line" and "The angle at the centre is twice the angle at the circumference from the same arc"

2. "The angle at the centre is twice the angle at the circumference from the same arc" is a rule to find missing angles in circles.

(i) Complete the missing angles ▲, ■, ♦ and ♠



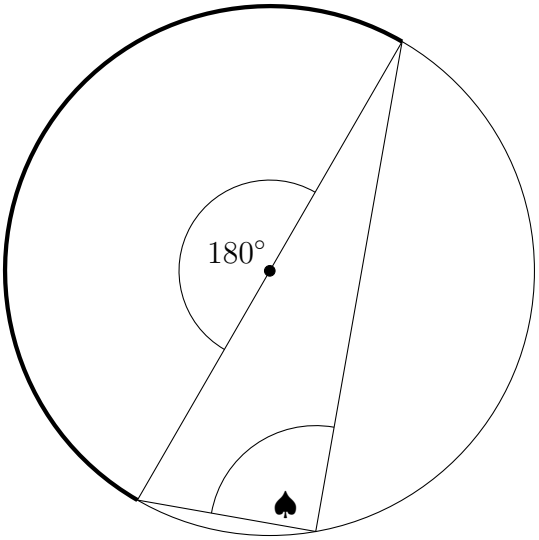
★ = 48°

▲ = ...°

■ = ...°

♦ = ...°

♠ = ...°



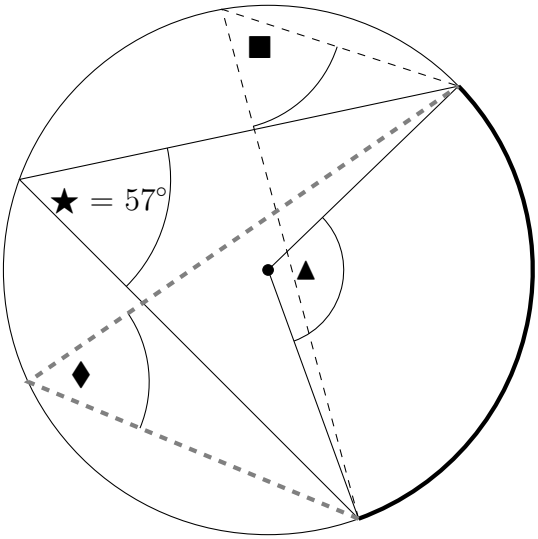
(ii) Complete: A quicker way to work out ■ and ♦, without bothering to work out ▲ and having to write the rule "The angle at the centre is twice the angle at the circumference from the same arc" is to use the rule:

"Angles at the circumference from the same arc are ....."

(iii) Complete: The rule **"Angle in a semi-circle = ... °"** saves having to write "The angle at the centre = 180° because the diameter is a straight line" and "The angle at the centre is twice the angle at the circumference from the same arc"

3. "The angle at the centre is twice the angle at the circumference from the same arc" is a rule to find missing angles in circles.

(i) Complete the missing angles ▲, ■, ♦ and ♠

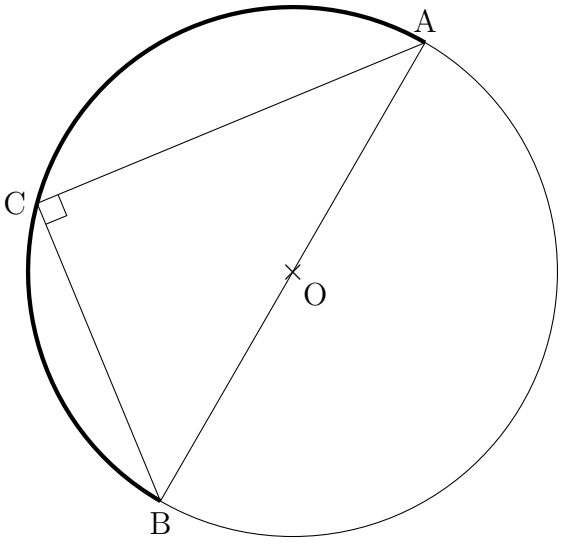


★ = 57°

▲ = ...°

■ = ...°

♦ = ...°



(ii) Complete: A quicker way to work out ■ and ♦, without bothering to work out ▲ and having to write the rule "The angle at the centre is twice the angle at the circumference from the same arc" is to use the rule:

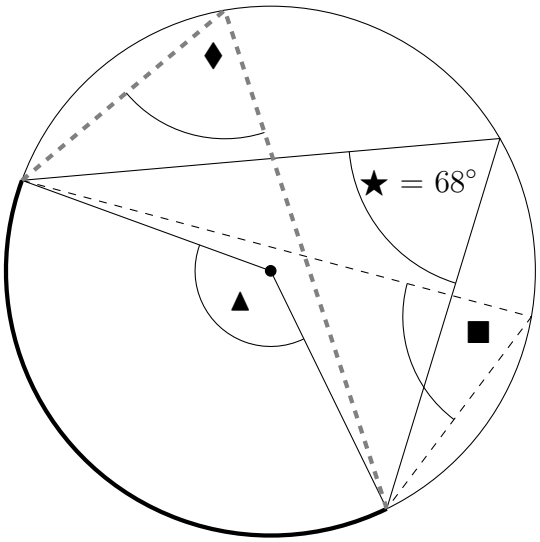
"Angles at the circumference from the same arc are ....."

(iii) Complete: The rule **"Angle in a semi-circle = 90°"** saves having to write

"Angle AOB = ... ° because the diameter is a straight line" and having to write "The angle at the centre is twice the angle at the circumference from the same arc"

4. "The angle at the centre is twice the angle at the circumference from the same arc" is a rule to find missing angles in circles.

   (i) Complete the missing angles ▲, ■, ♦ and ♠



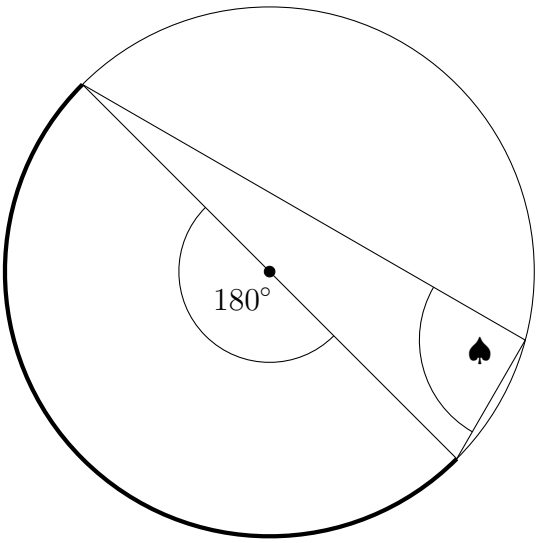
★ = 68°

▲ = ...°

■ = ...°

♦ = ...°

♠ = ...°



   (ii) Complete: A quicker way to work out ■ and ♦, without bothering to work out ▲ and having to write the rule "The angle at the centre is twice the angle at the circumference from the same arc" is to use the rule:

   "Angles at the circumference from the same arc are ....."

   (iii) Complete: The rule **"Angle in a semi-circle = ... °"** saves having to write "The angle at the centre = 180° because the diameter is a straight line" and "The angle at the centre is twice the angle at the circumference from the same arc"

Answers

1. (i) ▲ = 100, ■ = ♦ = 50, ♠ = 90 (ii) equal (iii) 90
2. (i) ▲ = 96, ■ = ♦ = 48, ♠ = 90 (ii) equal (iii) 90
3. (i) ▲ = 114, ■ = ♦ = 57 (ii) equal (iii) 180
4. (i) ▲ = 136, ■ = ♦ = 68, ♠ = 90 (ii) equal (iii) 90