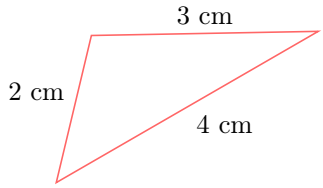
PROPERTIES OF TRIANGLES

A TYPES OF TRIANGLES

A.1 CLASSIFYING TRIANGLES BY SIDE LENGTHS

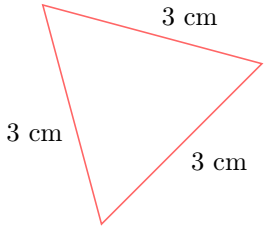
MCQ 1: Classify the triangle:



Choose one answer:

- ☐ Scalene
- ☐ Isosceles
- ☐ Equilateral
- ☐ Right-angled triangle

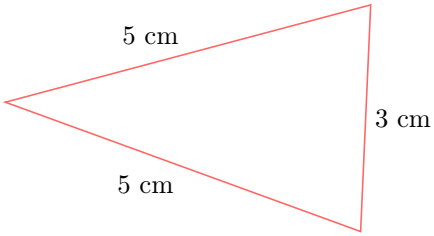
MCQ 2: Classify the triangle:



Choose one answer:

- ☐ Scalene
- ☐ Equilateral
- ☐ Right-angled triangle

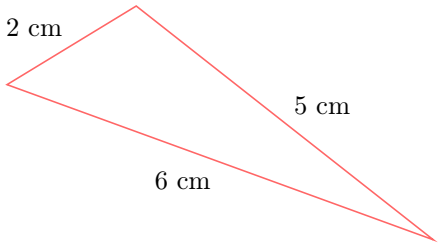
MCQ 3: Classify the triangle:



Choose one answer:

- ☐ Scalene
- ☐ Isosceles
- ☐ Equilateral
- ☐ Right-angled triangle

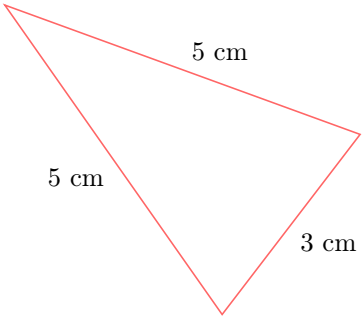
MCQ 4: Classify the triangle:



Choose one answer:

- ☐ Scalene
- ☐ Isosceles
- ☐ Equilateral
- ☐ Right-angled triangle

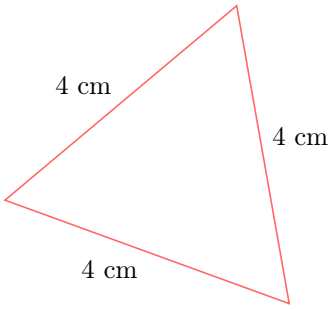
MCQ 5: Classify the triangle:



Choose one answer:

- ☐ Scalene
- ☐ Isosceles
- ☐ Equilateral
- ☐ Right-angled triangle

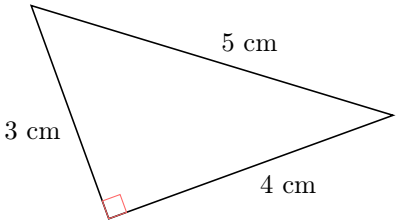
MCQ 6: Classify the triangle:



Choose one answer:

- ☐ Scalene
- ☐ Equilateral
- ☐ Right-angled triangle

MCQ 7: Classify the triangle:



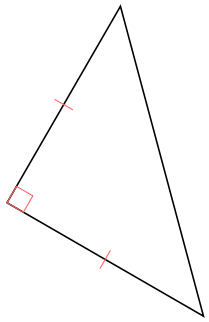
Choose one answer:

☐ Isosceles

☐ Equilateral

☐ Right-angle

MCQ 8: Classify the triangle:



Choose one or two answers:

☐ Scalene

☐ Isosceles

☐ Equilateral

☐ Right-angle

A.2 CONSTRUCTING TRIANGLES WITH A RULER AND COMPASS

Ex 9: Construct a triangle ABC with $AB = 3$ cm, $AC = 6$ cm, and $BC = 5$ cm, leaving the construction marks visible, using a ruler and a compass.

Ex 10: Construct a triangle ABC with $AB = 4$ cm, $AC = 3$ cm, and $BC = 5$ cm, leaving the construction marks visible, using a ruler and a compass.

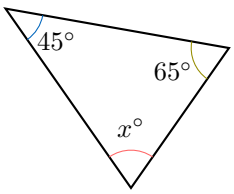
Ex 11: Construct an equilateral triangle ABC with $AB = 4$ cm, leaving the construction marks visible, using a ruler and a compass.

Ex 12: Construct an isosceles triangle ABC with $AB = 4$ cm, $AC = 3$ cm, and $BC = 3$ cm, leaving the construction marks visible, using a ruler and a compass.

B ANGLES

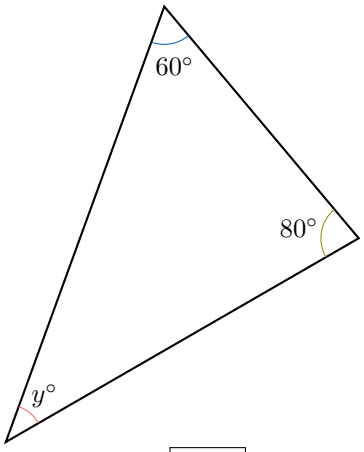
B.1 FINDING AN UNKNOWN ANGLE

Ex 13: Find the unknown angle in the triangle below:



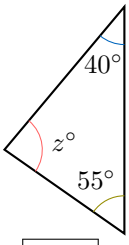
$x° =$ ☐°

Ex 14: Find the unknown angle in the triangle below:



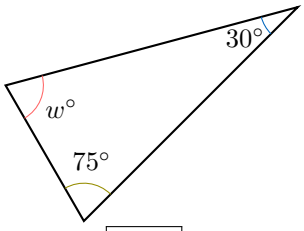
$y° =$ ☐°

Ex 15: Find the unknown angle in the triangle below:



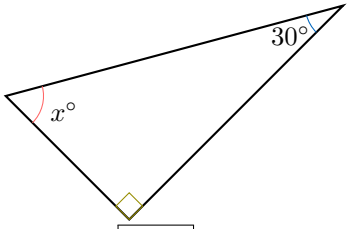
$z° =$ ☐°

Ex 16: Find the unknown angle in the triangle below:



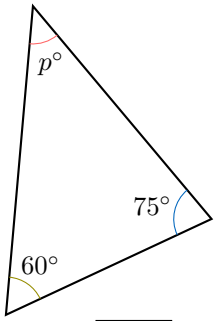
$w° =$ ☐°

Ex 17: Find the unknown angle in the triangle below:



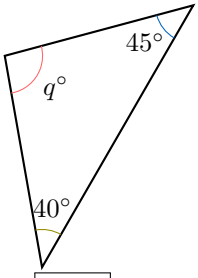
$x° =$ ☐°

Ex 18: Find the unknown angle in the triangle below:



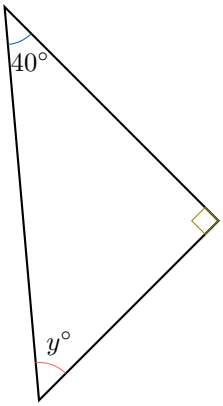
$p° =$ ☐°

Ex 19: Find the unknown angle in the triangle below:



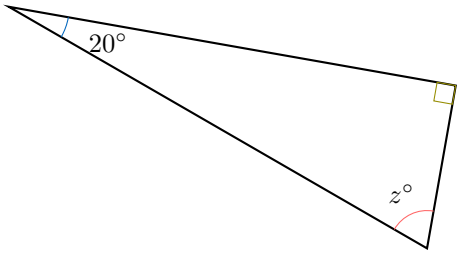
$q° =$ ☐°

Ex 20: Find the unknown angle in the triangle below:



$y° =$ ☐°

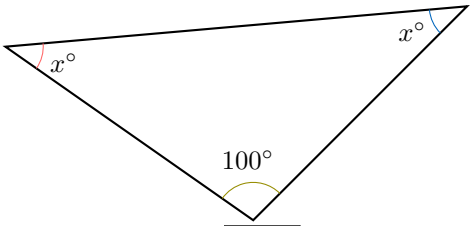
Ex 21: Find the unknown angle in the triangle below:



$z° =$ ☐ °

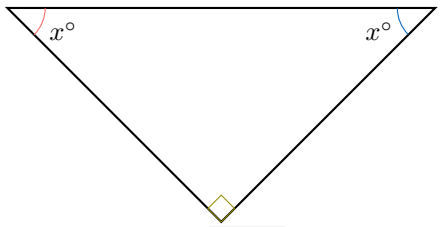
B.2 FINDING ANGLES IN ISOSCELES TRIANGLES

Ex 22: Find the unknown angle in the triangle below:



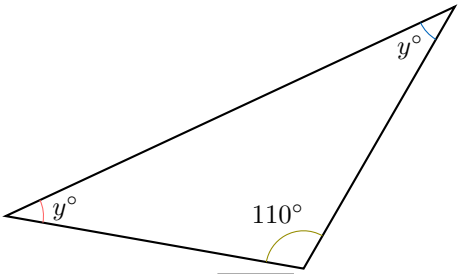
$x° =$ ☐ °

Ex 23: Find the unknown angle in the triangle below:



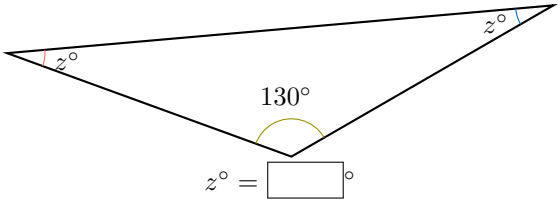
$x° =$ ☐ °

Ex 24: Find the unknown angle in the triangle below:



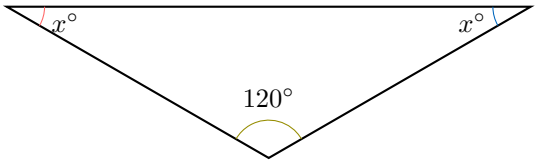
$y° =$ ☐ °

Ex 25: Find the unknown angle in the triangle below:



$z° =$ ☐ °

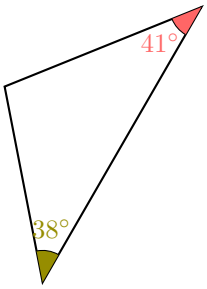
Ex 26: Find the unknown angle in the triangle below:



$x° =$ ☐ °

B.3 CLASSIFYING ANGLES

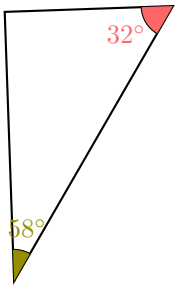
MCQ 27: Classify the triangle:



Choose one answer:

- ☐ Isosceles
- ☐ Equilateral
- ☐ Right-angle
- ☐ Scalene

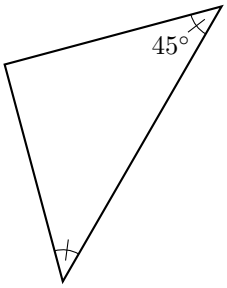
MCQ 28: Classify the triangle:



Choose one answer:

- ☐ Isosceles
- ☐ Equilateral
- ☐ Right-angle
- ☐ Scalene

MCQ 29: Classify the triangle:



Choose two answers:

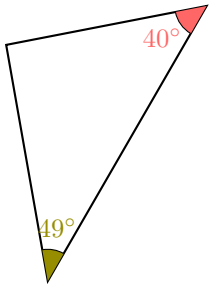
☐ Isosceles

☐ Equilateral

☐ Right-angle

☐ Scalene

MCQ 30: Classify the triangle:



Choose one answer:

☐ Isosceles

☐ Equilateral

☐ Right-angle

☐ Scalene

B.4 EVALUATING ANGLE PROPERTIES

MCQ 31: An equilateral triangle can be a right-angled triangle.
Choose one answer:

☐ True

☐ False

MCQ 32: An isosceles triangle can be a right-angled triangle.
Choose one answer:

☐ True

☐ False

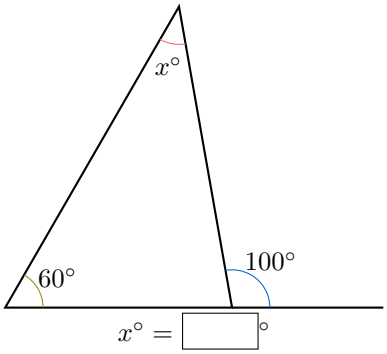
MCQ 33: A triangle can have two right angles.
Choose one answer:

☐ True

☐ False

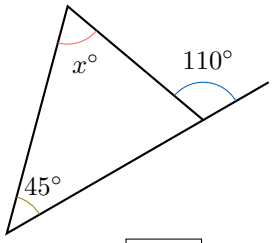
B.5 DEDUCTING ANGLES IN TRIANGLE CONFIGURATIONS

Ex 34: Find the unknown angle in the triangle below:



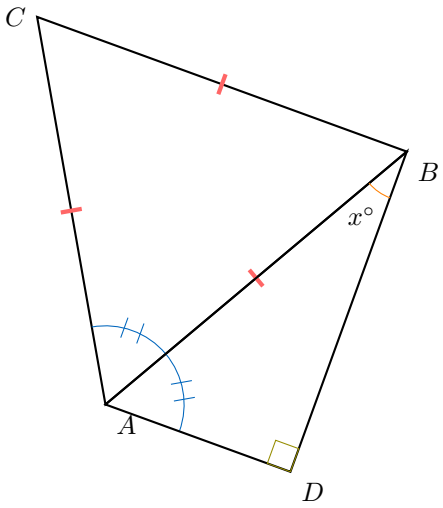
$x° =$ ☐ °

Ex 35: Find the unknown angle in the triangle below:



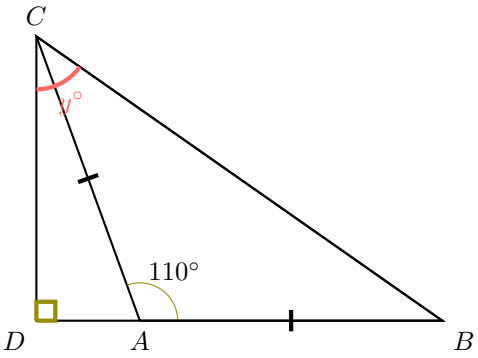
$x° =$ ☐ °

Ex 36: Find the unknown angle in the triangle below:



$x° =$ ☐ °

Ex 37: Find the unknown angle in the triangle below:

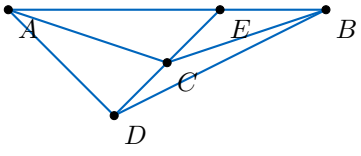


$y° =$ ☐ °

C TRIANGLE INEQUALITY THEOREM

C.1 WRITING INEQUALITIES

Ex 38:

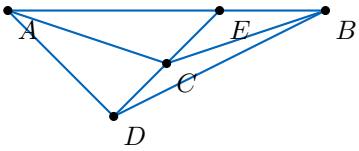


$\square >$

$AD \ \square < \ AC + CD$

$\square =$

Ex 39:

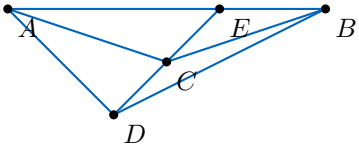


$\square <$

$BC + CA \ \square > \ AB$

$\square =$

Ex 40:

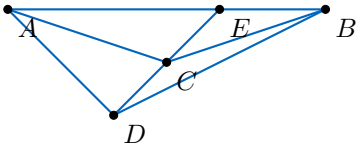


$\square <$

$BE + EA \ \square > \ BA$

$\square =$

Ex 41:



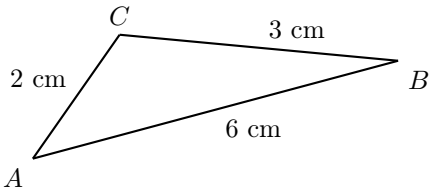
$\square <$

$AE + ED \ \square > \ AD$

$\square =$

C.2 DETERMINING TRIANGLE EXISTENCE

MCQ 42:

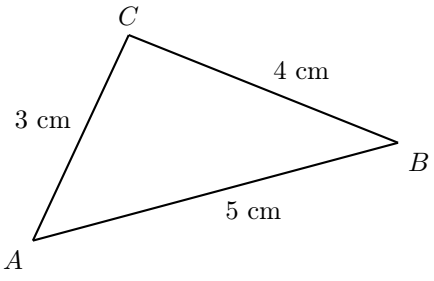


Could these be the side lengths of a triangle?

☐ Yes

☐ No

MCQ 43:

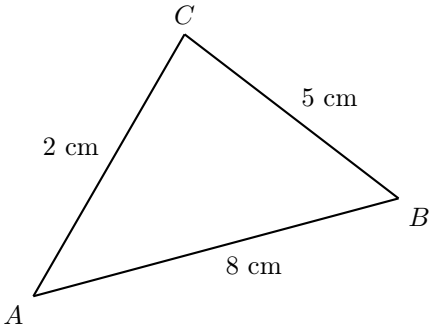


Could these be the side lengths of a triangle?

☐ Yes

☐ No

MCQ 44:

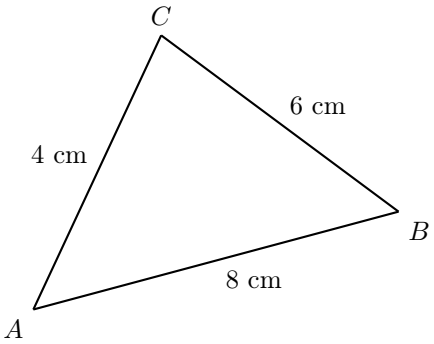


Could these be the side lengths of a triangle?

☐ Yes

☐ No

MCQ 45:

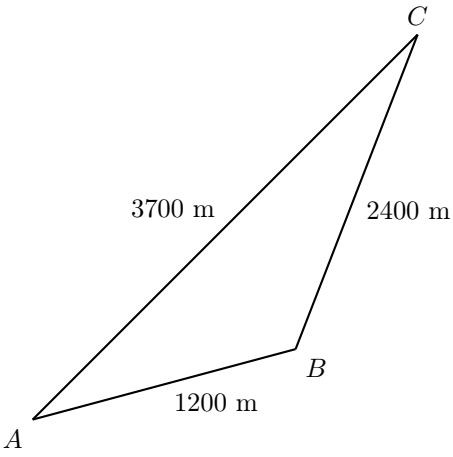


Could these be the side lengths of a triangle?

☐ Yes

☐ No

MCQ 46:



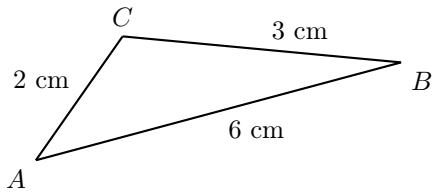
Could these be the side lengths of a triangle?

☐ Yes

☐ No

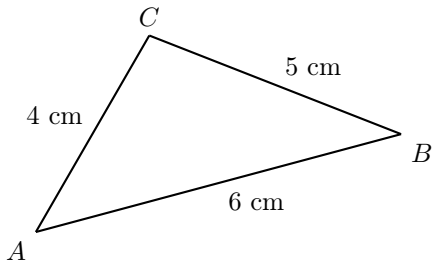
C.3 DETERMINING TRIANGLE EXISTENCE

Ex 47:



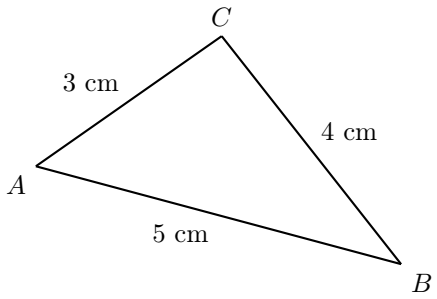
Could these side lengths form a triangle? Justify your answer.

Ex 48:



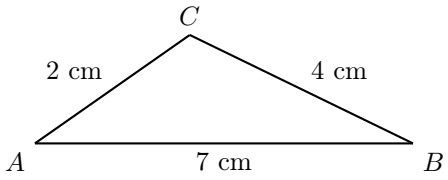
Could these side lengths form a triangle? Justify your answer.

Ex 49:



Could these side lengths form a triangle? Justify your answer.

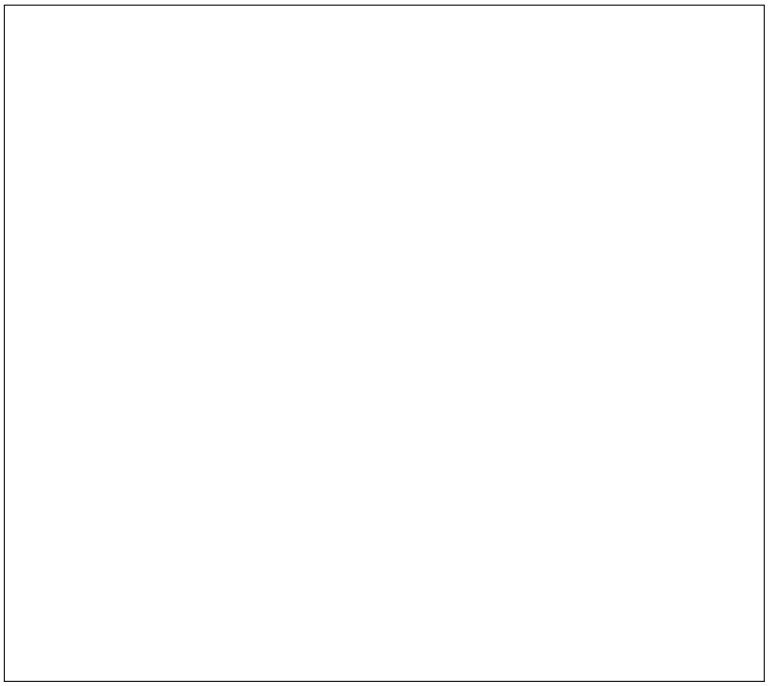
Ex 50:



Could these side lengths form a triangle? Justify your answer.

C.4 EXPLORING TRIANGLE EXISTENCE

Ex 51: ABC is an isosceles triangle with C as the vertex of the equal sides. The perimeter is 10 cm, and $AB = 3$ cm. Can this triangle be constructed? Justify your answer.

Ex 52: ABC is an isosceles triangle with C as the vertex of the equal sides. The perimeter is 10 cm, and $AC = 2$ cm. Can this triangle be constructed? Justify your answer.

Ex 53: In triangle ABC, $AB = 5$ cm and $AC = 3$ cm. What are the possible integer lengths for segment $\overline{BC}$? Justify your answer.