Name & Surname: _____ Class: _____ Date: _____

Measuring Angles

Measure and sketch angles in degrees

About 45 minutes Level ★★★☆☆

How to Measure in Degrees

An **angle** is made by two **rays** meeting at a **vertex**. We measure the opening in **degrees** (°).

- Put the center mark on the **vertex**.
- Line up one **ray** with 0°.
- Read the **scale** that starts at 0° to find the **measure**.
- To sketch, draw a **ray**, mark a dot at the measure, then draw the second **ray**.

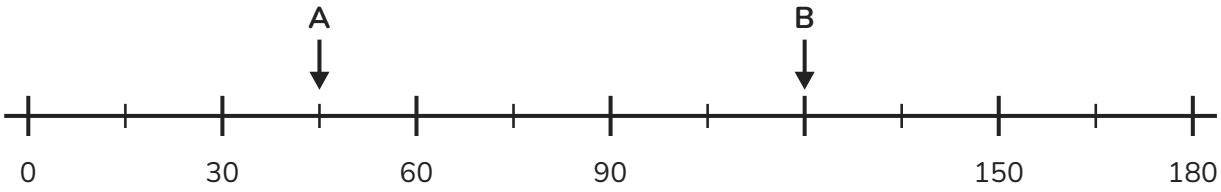


↑↓ Task A

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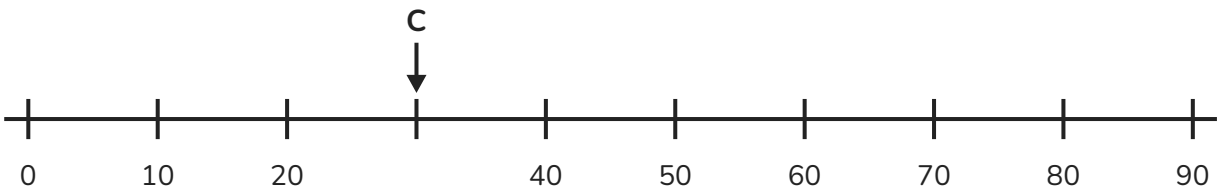
Read these degree scales like a protractor. Say the marked values.

1



A = ☐ B = ☐ Draw an arrow to show: 90

2



C = ☐ Draw an arrow to show: 70

Key Words

angle: the opening made by two rays meeting

ray: a line that starts at a point and goes on forever

protractor: a tool for measuring angles

right angle: an angle that is exactly 90 degrees

vertex: the point where the two rays meet

degree: a unit for measuring angles

acute: an angle less than 90 degrees

obtuse: an angle greater than 90 degrees but less than 180 degrees

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Read the Protractor

Practice reading measures and naming angle types.

Task B

/10

Read each protractor and answer about angles.

WARM UP

1 Write the measure of a **right angle**.

Answer: _____

2 An **angle** measures 35°. Is it acute, right, or obtuse?

Answer: _____

3 An **angle** measures 105°. Is it acute, right, or obtuse?

Answer: _____

PRACTISE

4 One **ray** is on 0°. The other **ray** points to 28° on that same scale. What is the **angle measure**?

Answer: _____

5 One **ray** is on 0°. The other **ray** points to 142° on that same scale. What is the **angle measure**?

Answer: _____

6 An **angle** of 80° is opened 30° wider. What is the new **measure**?

Answer: _____

7 An **angle** of 160° is closed by 75°. What is the new **measure**?

Answer: _____

PROBLEM SOLVING

8 A book cover opens to 110°. Is it acute, right, or obtuse? Explain how you know.

Answer: _____

9 A door opens from 0° to 90°, then 35° more. What is the final **angle measure**?

Answer: _____

10 A **protractor** shows 60° on the inside scale and 120° on the outside scale. One **ray** is on 0° of the inside scale. What is the correct **measure**? Explain how you know.

Answer: _____

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Sketch It Right

Practice sketching angles and solving angle problems.

Task C

/10

Think about sketching angles and working with degrees.

WARM UP

1 You sketch a 50° **angle**. Is it acute, right, or obtuse?

Answer: _____

2 You sketch a 130° **angle**. Is it acute, right, or obtuse?

Answer: _____

3 How many **degrees** must you add to 90° to make 180°?

Answer: _____

PRACTISE

4 Which is the largest **angle**: 120°, 75°, 90°, or 35°?

Answer: _____

5 An **angle** measures 45°. What is double that **measure**?

Answer: _____

6 To sketch 70°, how many **degrees** short of a **right angle** is it?

Answer: _____

7 To sketch 110°, how many **degrees** past a **right angle** is it?

Answer: _____

PROBLEM SOLVING

8 A laptop screen opens from 0° to 100°, then 25° more. What is the final **angle measure**?

Answer: _____

9 A student sketches 60°, then sketches a second **angle** twice as wide. What is the second **measure**? What type is it?

Answer: _____

10 Explain in order how to sketch a 135° **angle** with a **protractor**.

Answer: _____

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Angles in Shapes

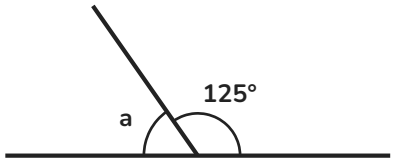
Find missing angles and sort angles by size.

Task D

/3

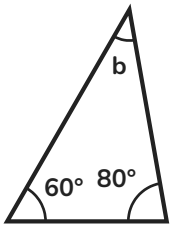
Find the missing angle in each diagram.

1



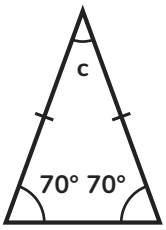
a = _____ °

2



b = _____ °

3



c = _____ °

The diagrams are drawn to size.

Task E

Example done for you

/5

Sort these angle measures into the correct group.

90° | 145° | 50° | ~~25°~~ | 100° | 80°

Acute	Right	Obtuse
25°		

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Spot the Mistake

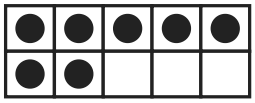
Count small angles and fix common protractor mistakes.

Task F

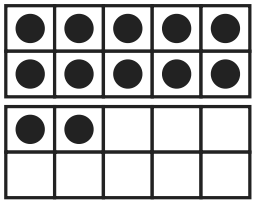
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Count the dots. Each dot is 1 degree. Write the total angle.

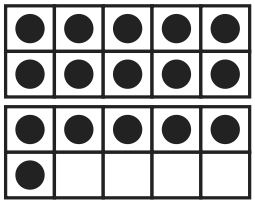
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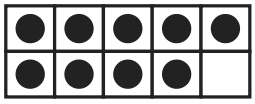
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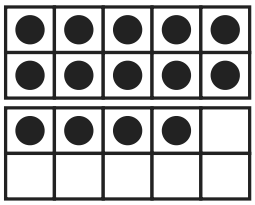
3



4



5



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Measuring Angles

Task 6

/4

Find the wrong step in each solution.



Student A

Measure the angle. One ray is on 0° of the inside scale. The scales show 125° inside and 55° outside.

1. Put the center on the vertex and one ray on 0°
2. Read the outside scale: 55°
3. So the answer is 55°

The mistake is in step: _____

What went wrong?

.....

Correct answer: _____



Student B

Sketch a 140° angle.

1. Draw one ray and place the protractor on the end
2. Mark a dot at 40°
3. Draw the second ray to the dot. The angle is 40°

The mistake is in step: _____

What went wrong?

.....

Correct answer: _____

How did I do?

Circle a face for each line.

I can measure angles in whole-number degrees with a protractor. ☹ 😐 ☺

I can sketch angles of a given measure. ☹ 😐 ☺

I can tell if an angle is acute, right, or obtuse. ☹ 😐 ☺

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Answer sheet: Measuring Angles

Task A

1. A = 45; B = 120; arrows at 90
2. C = 30; arrows at 70

Task B

1. 90°
2. acute
3. obtuse
4. 28°
5. 142°
6. 110°
7. 85°
8. obtuse because 110° is greater than 90° but less than 180°
9. 125°
10. 60° because I read the scale that starts at 0°

Task C

1. acute
2. obtuse
3. 90°
4. 120°
5. 90°
6. 20°
7. 20°
8. 125°
9. 120° and obtuse
10. Draw a ray, line up the protractor on the vertex at 0°, mark a dot at 135°, then draw the second ray to the dot

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Task D

a = 55° (angles on a straight line add up to 180°)
b = 40° (angles in a triangle add up to 180°)
c = 40° (the two base angles are equal, and the angles add up to 180°)

Task E

Acute: 25°, 50°, 80°
Right: 90°
Obtuse: 100°, 145°

Task F

1. 7
2. 12
3. 16
4. 9
5. 14

Task G

1. Step 2 is wrong: They read the wrong scale. You must read the scale that starts at 0°, the inside scale. Correct answer: 125°
2. Step 2 is wrong: They marked the acute number. 140° is obtuse, so they must mark 140°, not 40°. Correct answer: 140°

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