Name & Surname: _____ Class: _____ Date: _____

Lines and Angles

Draw, name, and spot lines and angles

About 40 minutes Level ★★★☆☆

Lines and Angles Toolkit

A **point** is one exact spot. Lines and angles are made from points and **rays**.

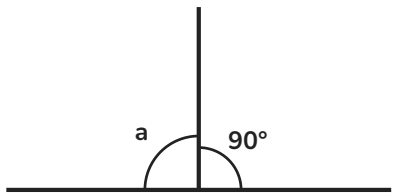
- A **point** is a dot. Name it with a capital letter, like A.
- A **line** goes on forever in both directions. Draw arrows on both ends.
- A **line segment** has two endpoints. It is a short straight piece.
- A **ray** starts at one endpoint and goes on forever in one direction.
- An **angle** is two rays with the same endpoint. That endpoint is the **vertex**.
- A **right angle** is 90°, like a square corner. An **acute angle** is less than 90°. An **obtuse angle** is more than 90° but less than 180°.

Task A

/4

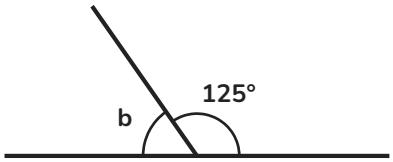
Find the missing angle in each diagram. Show your thinking.

1



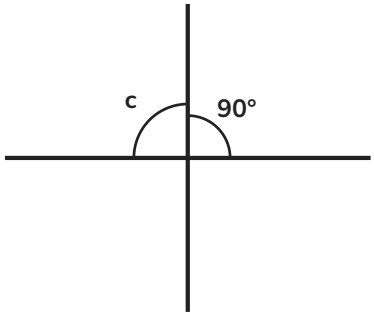
a = _____ °

2



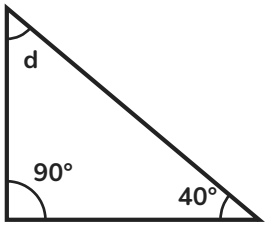
b = _____ °

3



c = _____ °

4



d = _____ °

The diagrams are drawn to size.

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Name That Part

Practice naming parts and sorting angles.

Task B

/10

Practice naming lines and angles.

WARM UP

1 What is the **size** of a **right angle** in degrees?

Answer: _____

2 An **angle** measures 30°. Is it acute, right, or obtuse?

Answer: _____

3 An **angle** measures 100°. Is it acute, right, or obtuse?

Answer: _____

4 A **line segment** has how many **endpoints**?

Answer: _____

PRACTICE

5 Like a **flashlight beam**, a ray has how many **endpoints**?

Answer: _____

6 How many **acute angles** are in this **set**: 25°, 90°, 45°, 120°, 80°?

Answer: _____

7 A window frame has opposite sides that never meet. Are opposite sides **parallel** or **perpendicular**?

Answer: _____

PROBLEM SOLVING

8 A **notebook page** is a rectangle. How many **right angles** does it have?

Answer: _____

9 A triangle has angles 50° and 60°. What is the **third angle** in **degrees**? Explain how you know.

Answer: _____

10 Draw a **line** through point M, then a second line through M that makes a **right angle** with the first. Are your lines parallel or perpendicular? Explain how you know.

Answer: _____

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Fix the Mistake

Spot common mistakes with angles and lines.

Key words

point: one exact spot, shown as a dot

ray: starts at one point and goes on in one direction

acute angle: angle less than 90 degrees

parallel: lines that never meet

line segment: straight piece with two endpoints

right angle: angle of exactly 90 degrees

obtuse angle: angle more than 90 degrees but less than 180 degrees

perpendicular: lines that meet at a right angle

Task C

/4

Find the wrong step in each solution. Explain the mistake.



Student A

An **angle** measures 125°. Circle acute, right, or obtuse.

1. 125° is greater than 90°
2. Any angle greater than 90° is acute
3. So the answer is acute

The mistake is in step: _____

What went wrong?

.....

Correct answer: _____



Student B

Two **lines** do not cross in the picture, but they would cross if extended. Are they **parallel**?

1. The lines do not cross in the picture
2. If lines do not cross in the picture, they are parallel
3. So they are parallel

The mistake is in step: _____

What went wrong?

.....

Correct answer: _____

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Shapes and Corners

Find parallel and perpendicular lines in shapes.

Task D

/10

Spot **parallel** and **perpendicular** lines in shapes.

WARM UP

1 Two lines cross and make a 90° corner. Are they **parallel** or perpendicular?

Answer: _____

2 How many pairs of **parallel sides** does a **rectangle** have?

Answer: _____

3 A **line** goes on forever both ways. How many **endpoints** does it have?

Answer: _____

PRACTICE

4 A triangle has angles 90°, 60°, and 30°. Is it a **right triangle**? How do you know?

Answer: _____

5 A **book cover** is a rectangle. How many pairs of **perpendicular sides** does it have?

Answer: _____

6 A student says all **intersecting lines** are perpendicular. Is that **always true**?

Answer: _____

7 Which **angle** is obtuse: 85° or **95°**?

Answer: _____

PROBLEM SOLVING

8 Two **railroad tracks** run side by side and never meet. Are they **parallel** or perpendicular? Explain how you know.

Answer: _____

9 Two angles on a **straight line** make 180°. One is 130°. What is the **other angle**?

Answer: _____

10 Draw **points** A and B. Draw **ray** AB and line segment AB. How are they different? Explain.

Answer: _____

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Match the Pairs

Play a memory game with geometry words.

Task E

Cut out the cards. Match each word to its meaning.

Cut out the cards.

exactly 90 degrees, like a square corner	 **right angle**	**point**	one exact spot, shown as a dot
line segment	starts at one point and goes on in one direction	 **acute angle**	less than 90 degrees
straight piece with two endpoints	more than 90 degrees but less than 180 degrees	**ray**	 **obtuse angle**

How did I do?

Circle a face for each line.

I can draw and name points, lines, segments, and rays.

I can identify right, acute, and obtuse angles.

I can spot parallel and perpendicular lines in shapes.

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Answer sheet: Lines and Angles

Task A

a = 90° (angles on a straight line add up to 180°)
b = 55° (angles on a straight line add up to 180°)
c = 90° (angles on a straight line add up to 180°)
d = 50° (angles in a triangle add up to 180°)

Task B

1. 90°
2. acute
3. obtuse
4. 2
5. 1
6. 3
7. parallel
8. 4
9. 70°
10. perpendicular

Task C

1. Step 2 is wrong: They mixed up the names. Acute means less than 90°. An angle of 125° is obtuse. Correct answer: obtuse
2. Step 2 is wrong: They forgot to extend the lines. Parallel lines never meet even if extended. Correct answer: Not parallel

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Task D

1. perpendicular
2. 2
3. 0
4. Yes, it has a right angle
5. 4
6. No
7. 95°
8. parallel
9. 50°
10. The ray has one endpoint and goes on, the segment has two endpoints and stops

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Task E

point = one exact spot, shown as a dot
line segment = straight piece with two endpoints
ray = starts at one point and goes on in one direction
right angle = exactly 90 degrees, like a square corner
acute angle = less than 90 degrees
obtuse angle = more than 90 degrees but less than 180 degrees

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