Measuring Angles with a Protractor

Name: _____	Date: _____	Score: _____ / 24

Quick Review

A **protractor** is a tool that measures how wide an angle opens, in degrees from $0°$ to $180°$. Once you know an angle's measure, you can name its type. An **acute angle** is less than $90°$ — it looks sharp and narrow. A **right angle** is exactly $90°$ — a perfect square corner. An **obtuse angle** is greater than $90°$ but less than $180°$ — it looks wide and open. A **straight angle** is exactly $180°$, a flat line. The bigger the number of degrees, the wider the angle opens.

◇ **Example:** A protractor shows an angle that opens to $125°$. Is it acute, right, or obtuse?

⇒ Compare the measure to $90°$. Since $125°$ is greater than $90°$ but still less than $180°$, the angle is wider than a square corner. That makes it an obtuse angle. A good check: obtuse angles look wide open, and $125°$ is definitely more than a square corner.

Answer: obtuse

PRACTICE

Name each angle as acute, right, or obtuse based on its measure.

1. An angle that opens to $30°$ _____
2. An angle that opens to $90°$ _____
3. An angle that opens to $150°$ _____
4. An angle that opens to $45°$ _____
5. An angle that opens to $110°$ _____
6. An angle that opens to $75°$ _____
7. An angle that opens to $135°$ _____
8. An angle that opens to $15°$ _____
9. An angle that opens to $100°$ _____
10. An angle that opens to $60°$ _____
11. An angle that opens to $170°$ _____
12. An angle that opens to $89°$ _____
13. An angle that opens to $91°$ _____
14. A right angle, like the corner of a book _____
15. An angle that opens to $5°$ _____
16. An angle that opens to $120°$ _____
17. An angle that opens to $80°$ _____
18. An angle that opens to $145°$ _____
19. The square corner of a piece of paper _____
20. An angle that opens to $55°$ _____

♦ Word Problems

21. Jamal measures the angle of a ramp with a protractor and it reads $25°$. Is the ramp angle acute, right, or obtuse? _____

22. A door is opened until the angle between the door and the wall reads $130°$ on a protractor. What type of angle is that? _____

23. The corner where two walls of Mia's classroom meet forms an angle that measures $90°$. What type of angle is the corner? _____

24. Two clock hands form an angle that opens to $65°$. Later they form an angle that opens to $115°$. Which angle is acute and which is obtuse? _____

Answer Keys

1. acute
2. right
3. obtuse
4. acute
5. obtuse
6. acute
7. obtuse
8. acute
9. obtuse
10. acute
11. obtuse
12. acute
13. obtuse
14. right
15. acute
16. obtuse
17. acute
18. obtuse
19. right
20. acute
21. acute
22. obtuse
23. right
24. 65° is acute, 115° is obtuse

Step-by-Step Explanations

1. Since 30° is less than 90°, the angle is acute.
2. Exactly 90° is a square corner, so the angle is right.
3. Since 150° is more than 90°, the angle is obtuse.
4. Since 45° is less than 90°, the angle is acute.
5. Since 110° is more than 90°, the angle is obtuse.
6. Since 75° is less than 90°, the angle is acute.
7. Since 135° is more than 90°, the angle is obtuse.
8. Since 15° is less than 90°, the angle is acute.
9. Since 100° is just past 90°, the angle is obtuse.
10. Since 60° is less than 90°, the angle is acute.
11. Since 170° is less than 180° but more than 90°, it is obtuse.
12. Since 89° is just under 90°, the angle is acute.
13. Since 91° is just over 90°, the angle is obtuse.
14. A square corner is exactly 90°, so this angle is right.
15. Since 5° is far less than 90°, the angle is acute.
16. Since 120° is more than 90°, the angle is obtuse.
17. Since 80° is less than 90°, the angle is acute.
18. Since 145° is more than 90°, the angle is obtuse.
19. A paper corner is a perfect 90° angle, so it is right.
20. Since 55° is less than 90°, the angle is acute.
21. The angle measures 25°, which is less than 90°, so it is an acute angle.
22. Since 130° is greater than 90° and less than 180°, the angle is obtuse.
23. An angle that measures exactly 90° is a right angle, a perfect square corner.
24. 65° is less than 90°, so it is acute. 115° is more than 90°, so it is obtuse.

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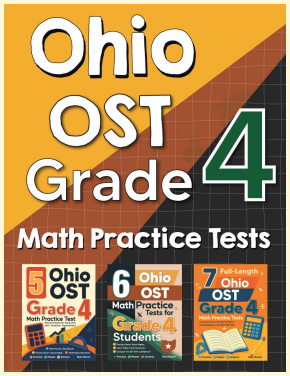

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