

Classifying Triangles

Name: _____

Date: _____

Score: _____ / 24

Q Quick Review

A **triangle** is a shape with 3 sides and 3 angles. We can sort triangles by their angles. A **right triangle** has exactly one 90° angle. An **acute triangle** has all three angles less than 90° . An **obtuse triangle** has one angle that is larger than 90° . We can also sort triangles by their sides. An **equilateral triangle** has all 3 sides equal. An **isosceles triangle** has exactly 2 sides equal. A **scalene triangle** has no equal sides — all 3 sides are different lengths.

◇ **Example:** A triangle has one angle that measures 110° . The other two angles are smaller. How would you classify this triangle by its angles?

⇒ Look at the biggest angle: it measures 110° . Compare that to 90° . Since 110° is larger than 90° , the triangle has one obtuse angle. A triangle with an angle bigger than 90° is called an obtuse triangle, no matter what the other angles are.

Answer: obtuse triangle

PRACTICE

Classify each triangle by its angles or by its sides as described.

- | | | | |
|----------------------------------------------------------|-------|-------------------------------------------------------------------|-------|
| 1. A triangle with one 90° angle | _____ | 12. A triangle with angles $70^\circ, 60^\circ, 50^\circ$ | _____ |
| 2. A triangle with all 3 sides equal | _____ | 13. A triangle with sides 9, 9, 4 | _____ |
| 3. A triangle with exactly 2 equal sides | _____ | 14. A triangle with one angle of 90° and two of 45° | _____ |
| 4. A triangle with no equal sides | _____ | 15. A triangle with sides 4, 8, 11 | _____ |
| 5. A triangle with one angle of 120° | _____ | 16. A triangle with angles $80^\circ, 80^\circ, 20^\circ$ | _____ |
| 6. A triangle with angles $60^\circ, 60^\circ, 60^\circ$ | _____ | 17. A triangle with one angle of 150° | _____ |
| 7. A triangle with sides 5, 5, 8 | _____ | 18. A triangle with sides 6, 6, 6 | _____ |
| 8. A triangle with sides 3, 6, 7 | _____ | 19. A triangle with sides 10, 10, 14 | _____ |
| 9. A triangle with angles $90^\circ, 45^\circ, 45^\circ$ | _____ | 20. A triangle with angles $90^\circ, 60^\circ, 30^\circ$ | _____ |
| 10. A triangle with sides 7, 7, 7 | _____ | | |
| 11. A triangle with one angle of 100° | _____ | | |

◆ Word Problems

21. Emma cuts a triangle out of paper for a craft. She measures its three sides and finds they are 5 cm, 5 cm, and 5 cm. What kind of triangle did Emma cut? _____
22. A road sign is shaped like a triangle. One of its angles measures 90° . What kind of triangle is the sign, classified by its angles? _____
23. Carlos draws a triangle where the three angles measure 55° , 65° , and 60° . How should Carlos classify his triangle by its angles? _____
24. Ava measures the sides of a triangular flag and gets 12 in, 9 in, and 15 in. Classified by its sides, what kind of triangle is the flag? _____



Answer Keys

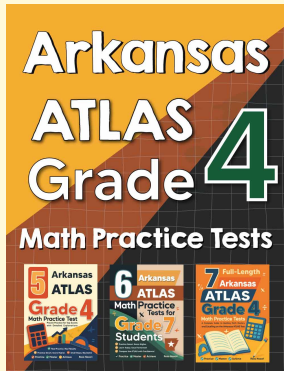
- | | |
|--------------------------|-----------------------------|
| 1. right triangle | 13. isosceles triangle |
| 2. equilateral triangle | 14. right triangle |
| 3. isosceles triangle | 15. scalene triangle |
| 4. scalene triangle | 16. acute triangle |
| 5. obtuse triangle | 17. obtuse triangle |
| 6. acute triangle | 18. equilateral triangle |
| 7. isosceles triangle | 19. isosceles triangle |
| 8. scalene triangle | 20. right triangle |
| 9. right triangle | 21. an equilateral triangle |
| 10. equilateral triangle | 22. a right triangle |
| 11. obtuse triangle | 23. an acute triangle |
| 12. acute triangle | 24. a scalene triangle |

Step-by-Step Explanations

- | | |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| 1. Exactly one 90° angle makes it a right triangle. | 13. Two sides match (9 and 9), so it is an isosceles triangle. |
| 2. All three sides equal means the triangle is equilateral. | 14. The 90° angle tells us it is a right triangle. |
| 3. Exactly two equal sides makes the triangle isosceles. | 15. No two sides are equal, so the triangle is scalene. |
| 4. When all three sides are different, the triangle is scalene. | 16. All three angles are under 90° , so it is an acute triangle. |
| 5. An angle of 120° is larger than 90° , so the triangle is obtuse. | 17. 150° is far bigger than 90° , so the triangle is obtuse. |
| 6. All three angles are less than 90° , so this is an acute triangle. | 18. All three sides are equal, so the triangle is equilateral. |
| 7. Two sides are equal (5 and 5), so the triangle is isosceles. | 19. Two sides are equal (10 and 10), so it is isosceles. |
| 8. All three sides are different lengths, so the triangle is scalene. | 20. One angle is exactly 90° , so this is a right triangle. |
| 9. It has a 90° angle, so it is a right triangle. | 21. All three sides are equal at 5 cm, so the triangle is equilateral. |
| 10. All three sides are the same length, so it is equilateral. | 22. A triangle with one 90° angle is a right triangle. |
| 11. 100° is greater than 90° , so the triangle is obtuse. | 23. Each angle (55° , 65° , and 60°) is less than 90° , so the triangle is acute. |
| 12. Every angle is below 90° , so the triangle is acute. | 24. The three sides are all different lengths, so the triangle is scalene. |



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