Classifying Triangles

Name: _____	Date: _____	Score: _____ / 24

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

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

Step-by-Step Explanations

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

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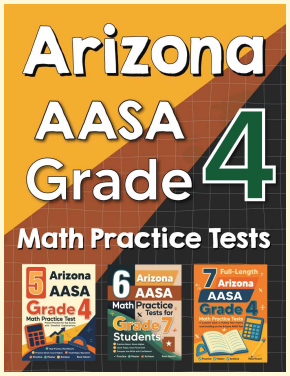

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