

Geometry and Angles: math practice, Grade 4 – download the PDF

24 problems graded by difficulty (★ easy, ★★ medium, ★★★ hard). Try first, without looking at the solutions!

1 Line, ray or segment?



Name each figure: *line*, *ray* or *segment*.

- It has two endpoints and you can measure its length.
- It starts at a point and goes on forever in one direction.
- It has no endpoints and goes on forever both ways.

2 Segments on a line



Four points P, Q, R and S lie on a line, in that order. How many different segments can you name using two of these points as endpoints? List them.

3 Name the angle



Classify each angle as acute, right, obtuse or straight: 35° , 90° , 112° , 89° , 180° , 151° .

4 True or false in everyday life



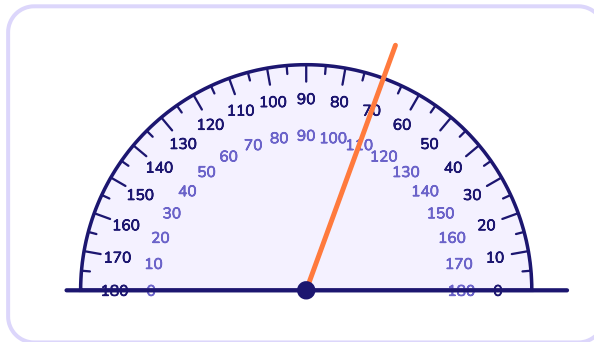
Say whether each statement is true or false and explain why.

- a. The two rails of a straight railroad track are parallel.
- b. The hands of a clock at 3:00 form a right angle.
- c. The hands of a clock at 6:00 form an acute angle.

5 Reading the protractor



The base ray of the protractor points to 0 on the outer scale.



(a) What is the measure of the angle? (b) Is it acute, right or obtuse?

6 Right angles and parallel sides



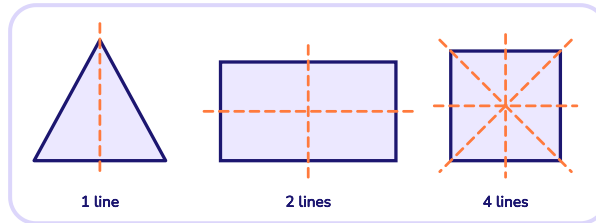
Copy and complete the table.

Shape	Right angles	Pairs of parallel sides
Square	?	?
Rectangle	?	?
Right triangle	?	?

7 Counting lines of symmetry



How many lines of symmetry does each shape have? (a) a square (b) a rectangle that is not a square (c) an isosceles triangle that is not equilateral (d) an equilateral triangle (e) a triangle whose three sides all have different lengths.



8 Missing angle in a corner



Find the missing measure.

- A right angle is split into 24° and an unknown angle.
- Two angles on a straight line: one measures 128° . Find the other.
- A right angle is split into 66° and an unknown angle.

9 Opening a door



A door is pushed open 25° , then pushed 40° farther. (a) How wide is the opening now? (b) How many more degrees are needed to open it a full right angle?

10 Triangles by sides



Classify each triangle as equilateral, isosceles or scalene from its side lengths (in centimeters): (a) 5, 5, 5 (b) 7, 7, 3 (c) 4, 5, 6 (d) 6, 9, 6.

11 Triangles by angles



The three angles of each triangle are given. Classify it as acute, right or obtuse. (a) 60° , 60° , 60° (b) 90° , 45° , 45° (c) 100° , 40° , 40° (d) 70° , 50° , 60° . Check that each triple adds up to 180° .

12 Quadrilateral true or false



True or false? Justify each answer.

- a. Every square is a rectangle.
- b. Every rectangle is a square.
- c. A rhombus has four equal sides.
- d. A trapezoid has exactly two pairs of parallel sides.

13 Clock angles

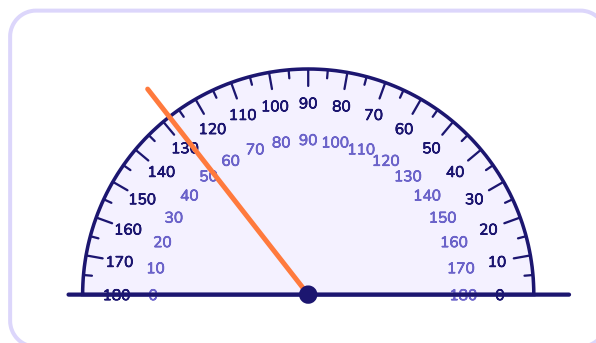


The hour marks on a clock are 30° apart. Find the angle between the hands at (a) 2:00 (b) 4:00 (c) 9:00 (d) 5:00, then classify each angle.

14 A wide angle



The base ray points to 0 on the outer scale.



(a) Measure the angle. (b) What kind of angle is it? (c) How many degrees more would make it a straight angle?

15 Letters and symmetry

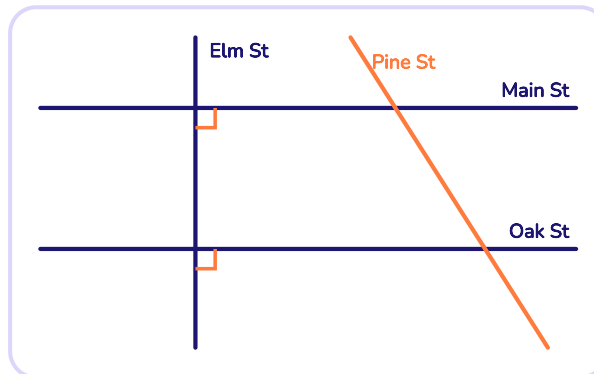


Which of the capital letters A, B, E, F, H, M, R, T have (a) a vertical line of symmetry? (b) a horizontal line of symmetry?

16 Parallel or perpendicular streets



Use the map.

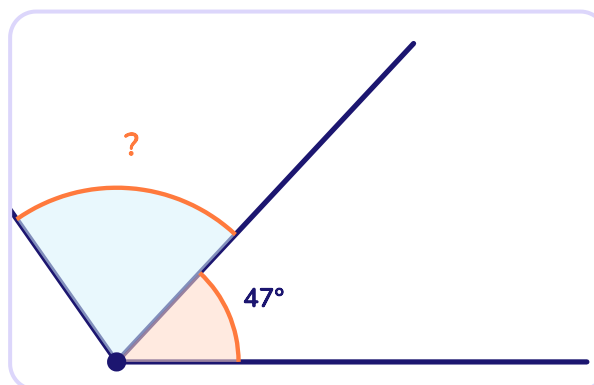


(a) Which two streets are parallel? (b) Which pairs of streets are perpendicular? (c) Is Pine Street parallel or perpendicular to any other street?

17 Adjacent angles



A big angle of 125° is split by a ray into a 47° angle and an unknown angle.



Find the unknown angle and classify all three angles.

18 Laptop screen



A laptop screen is open 105° . You close it 38° , then a friend opens it 21° more. (a) What is the final angle? (b) Is it acute, right or obtuse?

19 Pie chart angles



A circle is cut into four sectors at the school fair: the sectors measure 90° , 120° , 85° and an unknown angle. A full turn is 360° . (a) Find the fourth angle. (b) Which sector is obtuse?

20 Who am I?



Name the quadrilateral.

- a. I have four equal sides and four right angles.
- b. I have four equal sides but my angles are not right angles.
- c. I have exactly one pair of parallel sides.
- d. I have four right angles but my sides are not all equal.

21 Robot turns

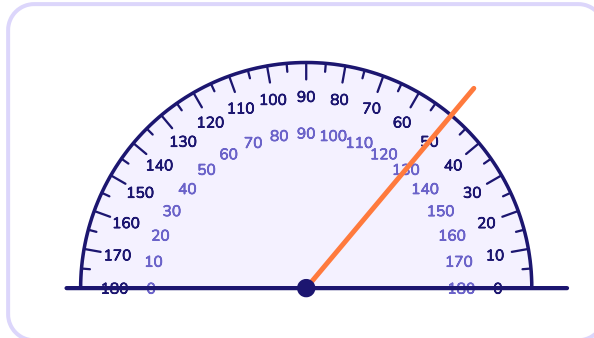


A robot turns 40° , then 75° , then 65° in the same direction. (a) What is the total turn? (b) What fraction of a full 360° turn is that? Name the kind of angle it makes.

22 Find the mistake

★★★

Maya measures this angle and says “It is 130° ”. The base ray points to 0 on the outer scale.



Explain her mistake and give the correct measure.

23 Folding a banner

★★★

A rectangular banner is 12 in by 8 in. It is folded exactly along a line of symmetry. (a) What are the two possible sizes of the folded banner? (b) Is the area of the folded banner the same in both cases?

24 Describe a triangle

★★★

A triangle has two sides of 6 cm and one side of 10 cm, and its largest angle is 120° . Classify it by its sides and by its angles.



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