

## Grade 4 Unit 7

Lesson 11

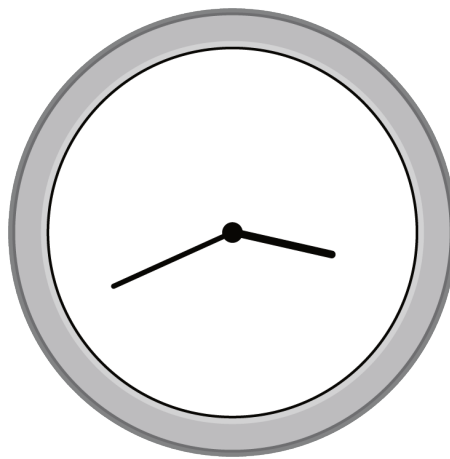
CC BY 2021 Illustrative Mathematics®

## Unit 7 Lesson 11: Use a Protractor to Draw Angles

### WU Estimation Exploration: Long Hand and Short Hand (Warm up)

#### Student Task Statement

How many degrees is the angle formed by the long hand and the short hand of the clock?



Make an estimate that is:

too low	about right	too high

### 1 Draw These Angles

#### Student Task Statement

1. Draw a line that is neither vertical nor horizontal. Put a point somewhere on that line. Use your protractor to draw a perpendicular line through that point. Be as precise as possible. (No folding this time!)
2. Here is a ray that starts at point  $M$ .



Use a protractor to draw:

- a. A ray starting at point  $M$  to create a  $40^\circ$  angle.
  - b. Another ray starting at point  $M$  to create a  $20^\circ$  angle.
  - c. One more ray starting at point  $M$  to create a  $95^\circ$  angle. Label each angle with its measurement.
3. In your drawing, there should be one angle that is not labeled with a measurement and is larger than  $180^\circ$ . Label the angle with an arc. How many degrees is this angle? Be prepared to explain how you know.

## 2 Angles Made to Order

### Student Task Statement

Your teacher will give you some blank cards. Label them a–d.

1. On each card, draw an angle that meets one requirement. Use a ruler and a protractor.
  - a. an angle that is less than  $35^\circ$
  - b. an angle that is between  $35^\circ$  and  $80^\circ$
  - c. an angle that is greater than  $80^\circ$  but less than  $120^\circ$
  - d. an angle that is greater than  $120^\circ$  but less than  $180^\circ$
2. Trade cards with your partner.
  - a. Measure and record each angle your partner drew. Check to make sure each angle meets the requirement.
  - b. If a requirement is not met, return it to your partner so it can be corrected. Save the cards for the next lesson.

If you have time:

1. Create a drawing that shows several angles. Then, write some descriptions of your drawing. Be as specific as possible.
2. Ask a partner to recreate the drawing based on your descriptions. Does their drawing turn out as you had drawn? If not, adjust your descriptions and ask them to try again.