Section 7.1 Measuring, Drawing, and Estimating Angles, Build Your Skills, p432–433
Student Resource p284–285

Build Your Skills

NOTE: An image of a compass showing Magnetic North is provided in Blackline Master 7.2 (p. 459). You may want to provide this to students for the Extend Your Thinking problem.

1. a) The actual angle is 26.5°. A good estimation would be either 25° or 30°.
b) The actual angle is 243°. A good estimation would be either 240° or 245°.

2. Students should be able to predict that the angles will be multiples of each other. The bottom right angle appears to have half of the measure of the upper and mid-right angles, and the upper and mid-right angles appear to have only half the measure of the left-most angle.
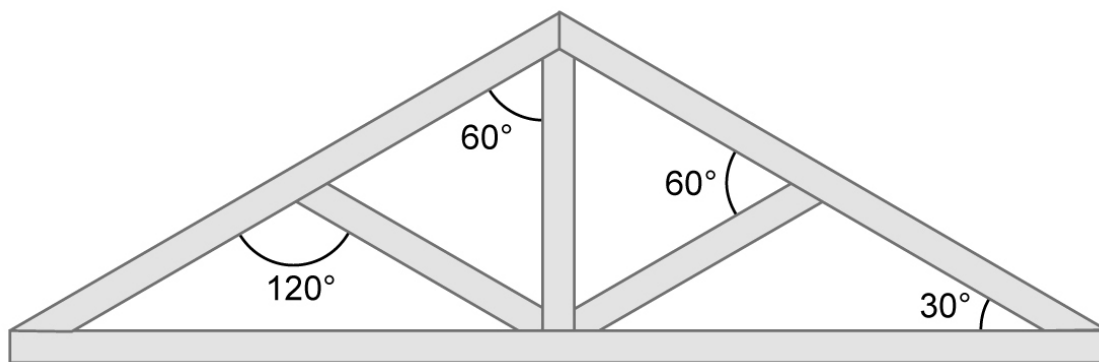

3. Angles that form a true corner must be complementary angles. Only a 40° angle will add up to 90° with a 50° angle. So, the bottom ends of the side pieces of the frame must be cut so that the angles measure 40°.
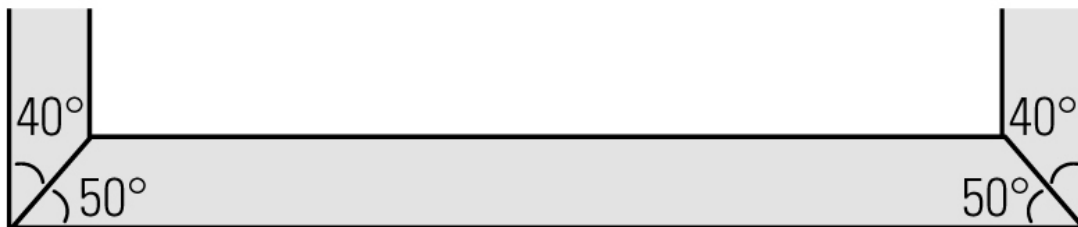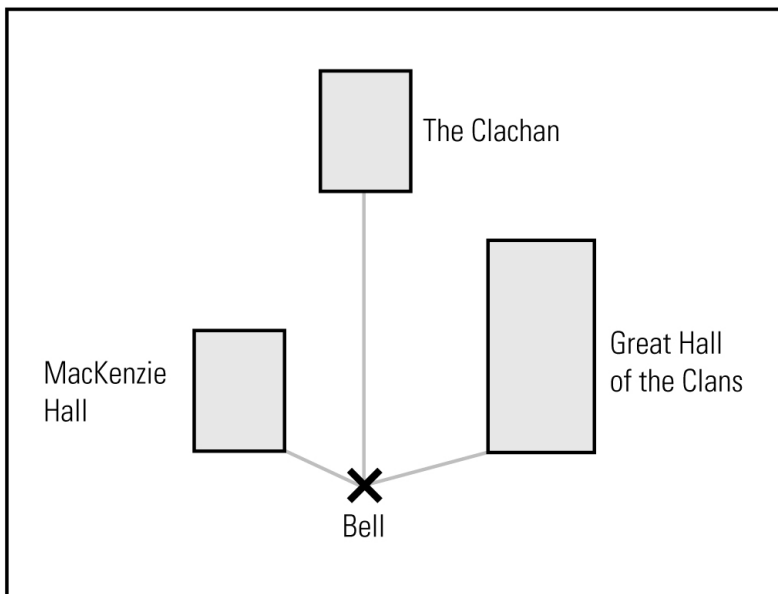

4. To make the octagonal panel, identical pieces in the shape of right triangles need to be cut off of the original piece of wood. The measure of angles in a triangle must add up to 180°. For any of these triangles, if you take away the 90° angle, then the sum of the angle of any of the cuts from the horizontal seems to be around 30° to 40°. If the measure of that angle equals 30°, the measure of the angle from the vertical must equal 60° (30 + 60 = 90). If the measure of that angle equals 40°, then the measure of the angle from the vertical must be 50° (40 + 50 = 90). The actual measures should be 33.7° from the horizontal and 56.3° from the vertical. Note that 33.7 plus 56.3 equals 90.

60 cm

30° to 40°

50° to 60°

40 cm

8 cm

12 cm

5.

N (0°)

315°

65°

220°

140°
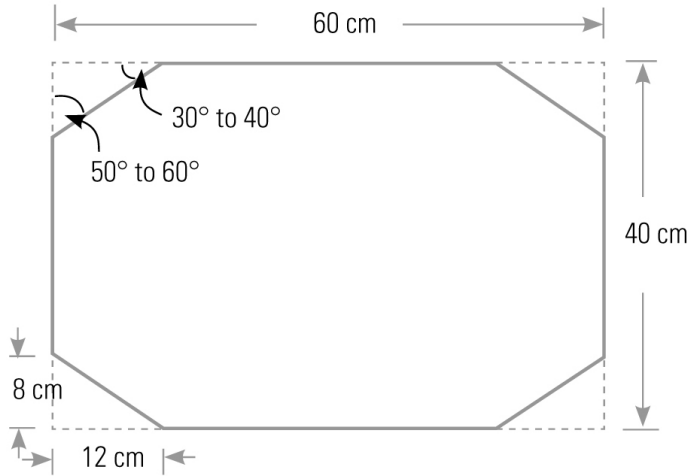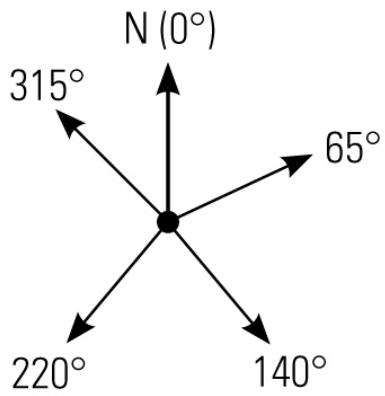
6. A typical diagram could look somewhat like the one below.

The Clachan

Great Hall
of the Clans

MacKenzie
Hall

Bell

Extend Your Thinking

7. a) The 6° should be subtracted from the true bearings to find the compass degrees.
b) The compass reading for the first leg will be 54° minus 6°, which equals 48°. The compass reading for the second leg will be 195° minus 6°, which equals 189°. The compass reading for the second leg will be 107° minus 6°, which equals 101°.

48°

189°

101°

Starting
point