44. FASHION To allow for a model's height, a designer is willing to use models that require him to change hems either up or down 2 inches. The length of the skirts is 20 inches.

   a. Write an absolute value equation that represents the length of the skirts.

   b. What is the range of the lengths of the skirts?

   c. If a 20-inch skirt was fitted for a model that is 5 feet 9 inches tall, will the designer use a 6-foot-tall model?

45. CARS Speedometer accuracy can be affected by many details such as tire diameter and axle ratio. For example, there is variation of ± 3 miles per hour when calibrated at 50 miles per hour.

   a. What is the range of actual speeds of the car if calibrated at 50 miles per hour?

   b. A speedometer calibrated at 45 miles per hour has an accepted variation of ± 1 mile per hour. What can we conclude from this?

Write an equation involving absolute value for each graph.

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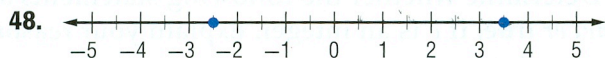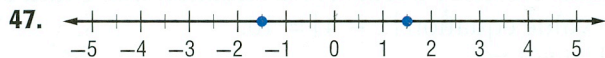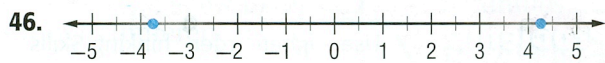
52. MUSIC A CD will record an hour and a half of music plus or minus 3 minutes for time to change tracks.

   a. Write an absolute value equation that represents the recording time.

   b. What is the range of time in minutes that the CD could run?

   c. Graph the possible times on a number line.

53 ACOUSTICS The Red Rocks Amphitheater located in the Red Rock Park near Denver, Colorado, is the only naturally occurring amphitheater. The acoustic qualities here are such that a maximum of 20,000 people, plus or minus 1000, can hear natural voices clearly.

   a. Write an equation involving an absolute value that represents the number of people that can hear natural voices at Red Rocks Amphitheater.

   b. Find the maximum and minimum number of people that can hear natural voices clearly in the amphitheater.

   c. What is the range of people in part **b**?