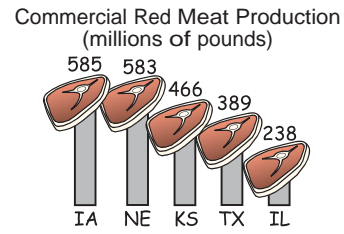# Workout 2

1. _____ yen   On a certain day, 10 U.S. dollars were worth 7.60 euros, and 1 euro was worth 155 Japanese yen. How many yen were the 10 U.S. dollars worth?

2. _____   **If** $\sqrt{225+64} - \sqrt{147 - \sqrt{n}} = \sqrt{25}$, what is the value of n?

3. _____ watts   Lighting experts recommend 150 to 200 watts of illumination for every 50 square feet of floor space. What is the minimum number of watts recommended for a room with a rectangular floor measuring 30 feet by 40 feet?
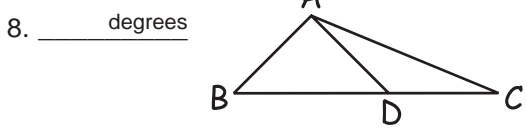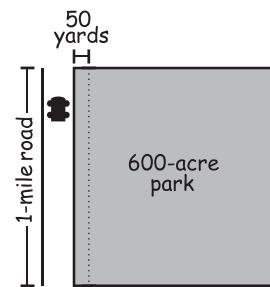
4. _____ %   By what percent is the commercial red meat production for Iowa (IA) greater than that for Texas (TX), according to the data shown? Express your answer to the nearest whole number.

Commercial Red Meat Production
(millions of pounds)

585   583   466   389   238

IA   NE   KS   TX   IL

5. _____ white gumballs   Anna bought 12 pieces of gum consisting of only red gumballs and white gumballs. The total cost was $1.29. The red gumballs each cost three cents more than each white gumball, and she bought fewer red gumballs than white gumballs. How many white gumballs did she buy?

6. _____   **If** k is an integer and $k > 100$, what is the smallest possible integer value of $\sqrt[3]{k^2}$?
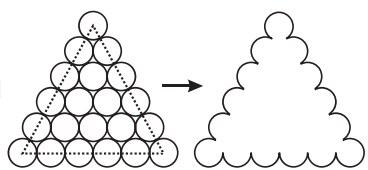
7. _____ deer   Jared wants to estimate the number of deer in a 600-acre state park. When driving along the one-mile road that is one side of the park, he can see an average distance of 50 yards into the park and counts 7 deer. An acre is 4840 square yards, and a mile is 1760 yards. **If** the deer are evenly distributed throughout the park, what is the best estimate of the number of deer in the park?

50 yards

1-mile road

600-acre park

8. _____ degrees   In the figure, BA = AD = DC and point D is on segment BC. The measure of angle ADC is 135 degrees. What is the measure of angle ABC?

9. $_____   In forming his budget for this year, Jamal decided to use his average cost for utilities last year to project his expenses for the future. Last year he spent an average of $216 per month on utilities, but he anticipates a 5% increase in the annual cost of utilities. Based on this information, how much should he expect to pay for utilities each month this year?

10. _____ cm   Twenty-one congruent circular discs are stacked in a triangular arrangement, as shown. Connecting the centers of the three vertex discs forms an equilateral triangle. The circumference of each disc is 18 cm. What is the outside perimeter of the arrangement?

Information for problem #4 is from USA TODAY Snapshots®, February 8, 2006. Source: USDA.

MATHCOUNTS 2007-2008