ALBERT

Name _____ Date _____

Accuracy and Precision Worksheet

Algebra 1 · Common Core HSN-Q.A.3

> Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Practice

Builds the skill step by step.

1. A ruler is marked in millimeters. Which length is reported at the right precision?

   A. 14.3 cm

   B. 14 cm

   C. 14.312 cm

   D. 10 cm

2. Round 3.14159 to the nearest hundredth.

3. Which measurement is more precise?

   A. 12.4 m

   B. 12.35 m

   C. 12 m

   D. 10 m

4. Which is a reasonable way to report a person's height?

   A. 165.0382 cm

   B. 200 m

   C. 165 cm

   D. 1.6 km

5. Round 2,487 to the nearest hundred.

6. A rectangle measures 4.2 cm by 3.1 cm. Its area on a calculator is 13.02 cm². Which report fits the measurements best?

   A. 13.02 cm²

   B. 13.0200 cm²

   C. 10 cm²

   D. 13 cm²

7. An object's true mass is 10.0 kg. Which reading is more accurate?

   A. 9.9 kg

   B. 12.47 kg

   C. 15 kg

   D. 5.0 kg

8. A board is measured as 2.3 m to the nearest 0.1 m. What could its actual length be?

   A. exactly 2.3 m

   B. between 2.25 m and 2.35 m

   C. between 2 m and 3 m

   D. between 2.3 m and 2.4 m

9. Which precision fits the distance between two cities?

   A. the nearest inch

   B. the nearest millimeter

   C. the nearest mile

   D. the nearest 1,000 miles

10. Round 0.0468 to the nearest thousandth.

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On Level

Grade-level practice.

1. A rectangle measures 5.2 cm by 3.7 cm. Which area is reported at an appropriate precision?
   A. 19.24 cm²
   B. 19.240 cm²
   C. 20.00 cm²
   D. 19 cm²

2. A scale accurate to the nearest 0.1 kg reads 64.3 kg. What range could the true mass be in?
   A. 64.25 kg to 64.35 kg
   B. 64.3 kg exactly
   C. 64 kg to 65 kg
   D. 63.3 kg to 65.3 kg

3. A rope measured as 10.00 m (to the nearest centimeter) is cut into 3 equal pieces. How should each length be reported?
   A. 3.333333333 m
   B. 3.33 m
   C. 3 m
   D. 3.3333 m

4. A length is measured to the nearest 0.5 cm. What is the greatest possible error?

5. Which precision is appropriate when measuring a room for carpet?

   A. the nearest thousandth of an inch

   B. the nearest yard

   C. about the nearest inch

   D. the nearest mile

6. A sprinter runs 100 m in 9.58 s. What is the average speed to the nearest hundredth of a meter per second?

7. What is the difference between accuracy and precision?

   A. They mean the same thing.

   B. Precision is closeness to the true value.

   C. Accuracy only applies to money.

   D. Accuracy is closeness to the true value; precision is how fine or consistent the measurements are.

8. Three measurements of a book are 12.1 cm, 12.3 cm and 12.2 cm. What is their mean?

9. Measurements of 5.2 cm and 3.7 cm give a calculated area of 19.24 cm^2. Explain why reporting 19.24 cm^2 is misleading.

10. A cube's edge is measured as 10 cm to the nearest centimeter. What range could its volume be in?

    A. about 857 cm^3 to about 1,158 cm^3

    B. exactly 1,000 cm^3

    C. 990 cm^3 to 1,010 cm^3

    D. 900 cm^3 to 1,100 cm^3

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Challenge

Multi-step and word problems that stretch it.

1. A rectangle is measured as 8 cm by 5 cm, each to the nearest centimeter. What is the largest area it could have?

2. For that rectangle (8 cm by 5 cm, each to the nearest centimeter), what is the smallest area it could have?

3. In a survey, 37 of 120 students chose soccer. Which report is most appropriate?

   A. 30.8333%

   B. about 31%

   C. 31.000%

   D. 30%

4. 37 of 120 students chose soccer. What percent is that, to the nearest whole percent?

5. A scale reads 2.0 kg, 2.0 kg and 2.0 kg for an object whose true mass is 2.5 kg. How would you describe the scale?

   A. accurate but not precise

   B. both accurate and precise

   C. precise but not accurate

   D. neither

6. A field is 120.4 m by 80.6 m. What is its perimeter to the nearest meter?

7. A GPS is accurate to about 3 meters. It shows a distance of 1,234.567 m. Which report is most honest?

   A. 1,234.567 m

   B. 1,234.5670 m

   C. 1 km exactly

   D. about 1,235 m

8. A hand-held stopwatch reads 12.4 s, but human reaction time adds up to 0.2 s of error either way. What range is reasonable for the true time?

   A. 12.2 s to 12.6 s

   B. 12.4 s exactly

   C. 12.0 s to 13.0 s

   D. 12.39 s to 12.41 s

9. Explain the difference between accuracy and precision using an example.

10. A city's population is 8,336,817. Estimate it to the nearest million.