LESSON MAKER PRO

Numbers That Fit

Model measured quantities without claiming too much precision.

HIGH SCHOOL · N.Q.A.2

N.Q.A.2 "Define appropriate quantities for the purpose of descriptive modeling. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities."

NAME _____ DATE _____

CHOOSE AND ROUND

First decide which quantity answers the question. When you add or subtract measurements, calculate before rounding, then report the result at the place of the least precise measurement.

WORKED EXAMPLE

An art club joins two pieces of ribbon. One measures 4.7 m to the nearest 0.1 m, and the other measures 11 m to the nearest 1 m. Report the total length.

1. The quantity needed is the total length.
2. Add: 4.7 + 11 = 15.7 m.
3. The least precise measurement is to the nearest meter, so round 15.7 m to 16 m.

Answer: 16 m

PRACTICE 6 problems

1 One bottle holds 2.6 L, measured to the nearest 0.1 L. Another holds 5 L, measured to the nearest 1 L. Report their combined volume.

ANSWER _____

2 A cable measures 18 m to the nearest meter. You cut off 3.4 m, measured to the nearest 0.1 m. Report the length left.

ANSWER _____

3 A parcel contains 120 g of packing material, measured to the nearest 10 g, and 27 g of tape, measured to the nearest 1 g. Name the quantity you need and report it.

ANSWER _____

4 Two weight plates have measured masses of 6.28 kg to the nearest 0.01 kg and 1.3 kg to the nearest 0.1 kg. Report their combined mass.

ANSWER _____

5 A strip of fabric measures 75 cm to the nearest centimeter. You use 22 cm, also measured to the nearest centimeter. Report the length remaining.

ANSWER _____

6 A skater travels 4.06 km and then 2.14 km. Each distance is measured to the nearest 0.01 km. Report the total distance.

ANSWER _____

APPLY IT Show your work

1 You are checking how much storage two game downloads need. Their sizes are about 1.38 GB, measured to the nearest 0.01 GB, and 2.4 GB, measured to the nearest 0.1 GB. What quantity do you need, and how should you report it?

WORK SPACE

ANSWER _____

2 A sound crew has 46 minutes to set up before a concert, measured to the nearest minute. Testing the speakers takes 18.7 minutes, measured to the nearest 0.1 minute. What quantity tells the crew how much setup time remains? Report it appropriately.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A route has three measured segments: 2.45 km to the nearest 0.01 km, 7.8 km to the nearest 0.1 km, and 30 km to the nearest 10 km. Report the total distance appropriately. Explain why reporting 40.25 km would be misleading.

WORK SPACE AND ANSWER

ANSWER KEY

Numbers That Fit

HIGH SCHOOL · N.Q.A.2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	One bottle holds 2.6 L, measured to the nearest 0.1 L. Another holds 5 L, measured to the nearest 1 L. Report their combined volume.	**8 L**
2	A cable measures 18 m to the nearest meter. You cut off 3.4 m, measured to the nearest 0.1 m. Report the length left.	**15 m**
3	A parcel contains 120 g of packing material, measured to the nearest 10 g, and 27 g of tape, measured to the nearest 1 g. Name the quantity you need and report it.	**Total mass of packing material and tape: 150 g**
4	Two weight plates have measured masses of 6.28 kg to the nearest 0.01 kg and 1.3 kg to the nearest 0.1 kg. Report their combined mass.	**7.6 kg**
5	A strip of fabric measures 75 cm to the nearest centimeter. You use 22 cm, also measured to the nearest centimeter. Report the length remaining.	**53 cm**
6	A skater travels 4.06 km and then 2.14 km. Each distance is measured to the nearest 0.01 km. Report the total distance.	**6.20 km**

PART 2 · APPLY IT

1. **Combined download size: about 3.8 GB** Add the sizes to get 3.78 GB. Report the combined size to the nearest 0.1 GB, the less precise place.
2. **Setup time remaining: about 27 minutes** Subtract to get 27.3 minutes remaining. Round to the nearest minute because the available time was measured to the nearest minute.

CHALLENGE

The reported total is 40 km. The measurements add to 40.25 km, but the third segment is measured only to the nearest 10 km. Reporting hundredths of a kilometer would claim more precision than the measurements support.

Accept answers with or without words such as "about" when the reported place is correct. In problem 6, 6.20 km shows the hundredths place of the measurements.