LESSON MAKER PRO

Precision Checkpoint

Match each answer to the limits of the measurements.

HIGH SCHOOL · HSN-Q.A.3

CCSS.Math.Content.HSN-Q.A.3 "Choose a level of accuracy appropriate to limitations on measurement when reporting quantities."

NAME _____ DATE _____

REPORT WHAT YOU KNOW

Do not report more precision than the measurements support. For addition and subtraction, round to the least precise decimal place. For multiplication and division, use no more significant figures than the measurement with the fewest significant figures.

WORKED EXAMPLE

A cyclist travels 12.38 m in 3.7 s. Find the average speed and report it with appropriate accuracy.

1. Average speed = distance / time.
2. 12.38 / 3.7 = 3.345945...
3. 12.38 has 4 significant figures, but 3.7 has 2 significant figures.
4. Round 3.345945... to 2 significant figures.

Answer: 3.3 m/s

PRACTICE 6 problems

1 A beaker contains 8.46 L of water. Then 1.2 L is added. Find the total volume and report it with appropriate accuracy.

ANSWER _____

2 A board is 15.3 cm long. A piece measuring 4.78 cm is cut off. Find the remaining length and report it with appropriate accuracy.

ANSWER _____

3 A rectangle measures 2.4 cm by 6.1 cm. Find its area and report it with appropriate accuracy.

ANSWER _____

4 A runner travels 48.6 m in 3.2 s. Find the average speed and report it with appropriate accuracy.

ANSWER _____

5 A scale records a package as 27 g, to the nearest gram. Another item has a mass of 3.64 g. Find the combined mass and report it with appropriate accuracy.

ANSWER _____

6 A phone screen is 0.83 cm wide and 7.5 cm tall. Find its area and report it with appropriate accuracy.

ANSWER _____

APPLY IT Show your work

1 For a fitness challenge, a student runs 60.0 m in 12.5 s. What is the student's average speed? Report the answer with appropriate accuracy.

WORK SPACE

ANSWER _____

2 A phone data tracker reports 6.8 GB of data used during one week and 2.35 GB during the next week. What total should be reported with appropriate accuracy?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A lab group measures a sample's mass as 18.6 g and its volume as 7.5 cm^3. Their calculator gives a density of 2.48 g/cm^3. Should they report 2.48 g/cm^3 or 2.5 g/cm^3? Explain your reasoning.

WORK SPACE AND ANSWER

ANSWER KEY

Precision Checkpoint

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A beaker contains 8.46 L of water. Then 1.2 L is added. Find the total volume and report it with appropriate accuracy.	**9.7 L**
2	A board is 15.3 cm long. A piece measuring 4.78 cm is cut off. Find the remaining length and report it with appropriate accuracy.	**10.5 cm**
3	A rectangle measures 2.4 cm by 6.1 cm. Find its area and report it with appropriate accuracy.	**15 cm^2, to 2 significant figures**
4	A runner travels 48.6 m in 3.2 s. Find the average speed and report it with appropriate accuracy.	**15 m/s, to 2 significant figures**
5	A scale records a package as 27 g, to the nearest gram. Another item has a mass of 3.64 g. Find the combined mass and report it with appropriate accuracy.	**31 g**
6	A phone screen is 0.83 cm wide and 7.5 cm tall. Find its area and report it with appropriate accuracy.	**6.2 cm^2**

PART 2 · APPLY IT

1. **4.80 m/s** Divide 60.0 by 12.5 to get 4.8. Both measurements have 3 significant figures, so write the speed as 4.80 m/s.
2. **9.2 GB** Add 6.8 and 2.35 to get 9.15. The first measurement is only precise to the nearest tenth, so round the total to 9.2 GB.

CHALLENGE

2.5 g/cm^3. The volume, 7.5 cm^3, has only 2 significant figures, so the density should have 2 significant figures.

Accept equivalent unit notation, such as cm2 for cm^2, when the numerical precision is correct. For multiplication and division, require the stated number of significant figures, including the trailing zero in 4.80 m/s.