Percent Yield from Reaction Data

New Regents original practice • Name: _____ Date: _____
Show your work for written answers.

Percent yield is (actual yield ÷ theoretical yield) × 100 percent. Actual yield is the mass of product collected.

1 A reaction’s theoretical product mass is 20.0 g, and 15.0 g is collected. What is the percent yield?

(1) 25.0 percent

(2) 66.7 percent

(3) 75.0 percent

(4) 133 percent

2 A reaction has a theoretical yield of 12.0 g and a percent yield of 80.0 percent. Calculate the actual yield. [1]

Answer and work

3 Explain how some product can be formed and the measured percent yield can still be below 100 percent. [1]

Answer and work

4 What establishes the theoretical yield in a calculation?

(1) The mass of the empty product container

(2) The largest amount of product predicted from the starting amounts and balanced equation

(3) The mass of product spilled during collection

(4) The mass of water used to wash the equipment

Comparing Product Recoveries

Use the information below to answer the questions.

A class compares three model runs that produce the same compound. Theoretical yields come from each run’s starting amounts. Actual yields are the measured dry product masses.

Run	Theoretical yield (g)	Actual yield (g)
P	10.0	8.0
Q	20.0	14.0
R	15.0	13.5

5 Which run has the highest percent yield?

(1) P

(2) Q

(3) R

(4) All three are equal.

6 Calculate the percent yield in run P and show your setup. [1]

Answer and work

7 Which run has the greatest difference between theoretical and actual yield in grams?

(1) P

(2) Q

(3) R

(4) All have the same difference.

8 A fourth run is reported above 100 percent. Explain one measurement issue that could lead to that result. [1]

Answer and work