Decimal Prize Ladder

Use this key to check answers and read the explanations.

1. What value does the digit 7 represent in the number 6.074?
   A. 0.07
   B. 0.7
   C. 0.007
   D. 7
   Correct answer: A. 0.07
   The 7 is two places right of the decimal point, in the hundredths place. It represents seven hundredths.

2. Which decimal is equal to four tenths plus nine thousandths?
   A. 0.094
   B. 0.49
   C. 0.409
   D. 0.049
   Correct answer: C. 0.409
   Four tenths is 0.4 and nine thousandths is 0.009. There are no hundredths, so the middle digit after the point is zero.

3. Which decimal has the same value as 5.2800?
   A. 5.028
   B. 5.28
   C. 5.208
   D. 5.0028
   Correct answer: B. 5.28
   Zeros at the end of the fractional part do not change its value. Removing the two final zeros gives 5.28.

4. Of these four decimals, which is the smallest?
   A. 0.702
   B. 0.7
   C. 0.72
   D. 0.072
   Correct answer: D. 0.072
   The number 0.072 has 72 thousandths. Each other choice represents at least 700 thousandths when written with three places after the decimal point.

5. Round 8.376 to the nearest hundredth.

A. 8.37
B. 8.38
C. 8.4
D. 8.376

Correct answer: B. 8.38
The thousandths digit is 6, so round the hundredths digit up. The result is 8.38.

6. What is 3.85 plus 0.076?

A. 3.926
B. 3.856
C. 3.976
D. 4.026

Correct answer: A. 3.926
Align the decimal points and write 3.85 as 3.850. Adding 0.076 gives 3.926.

7. What is 12.4 minus 3.685?

A. 9.715
B. 8.815
C. 9.285
D. 8.715

Correct answer: D. 8.715
Write 12.4 as 12.400 so both amounts are counted in thousandths. Subtracting 3.685 leaves 8.715.

8. What is 2.4 times 0.35?

A. 8.4
B. 0.084
C. 0.84
D. 84

Correct answer: C. 0.84
Multiply 24 by 35 to get 840. The factors have three fractional digits altogether, so the product is 0.840, or 0.84.

9. What is 6.72 divided by 0.8?

A. 8.4
B. 0.84
C. 5.376
D. 84

Correct answer: A. 8.4
Multiply both dividend and divisor by 10 to get the equivalent division 67.2 divided by 8. That equals 8.4.

10. What decimal is exactly equal to 37/125?

A. 0.329
B. 0.037
C. 0.37
D. 0.296

Correct answer: D. 0.296
Multiply the numerator and denominator by 8 to get 296/1,000. That is 0.296.

11. A studio has 10 meters of cable. It uses 4 lengths of 1.35 meters and 2 lengths of 0.85 meter. Ignore any loss from cutting. How much cable remains?

A. 4.6 meters
B. 3.75 meters
C. 2.9 meters
D. 7.1 meters

Correct answer: C. 2.9 meters
The first group uses 5.4 meters and the second uses 1.7 meters. Subtract their combined 7.1 meters from 10 to get 2.9 meters.

12. Each empty pot has a mass of 0.675 kilogram. Each identical filled pot has a mass of 1.825 kilograms. What is the combined mass of the contents alone in 6 filled pots?

A. 4.05 kilograms
B. 6.9 kilograms
C. 10.95 kilograms
D. 15 kilograms

Correct answer: B. 6.9 kilograms
One pot’s contents have a mass of 1.825 minus 0.675, or 1.15 kilograms. Six sets of contents have a total mass of 6.9 kilograms.

13. Three readings are 2.46, 2.46 and 2.46. Group A rounds each reading to the nearest tenth before adding. Group B adds first and rounds its sum to the nearest tenth. How much larger is Group A’s result?

A. 0.12
B. 0.02
C. 0.04
D. 0.1

Correct answer: D. 0.1
Group A adds three values of 2.5 to get 7.5. Group B adds to 7.38 and rounds to 7.4. The displayed results differ by 0.1.

14. A tank begins with 1.8 liters of water. In each of 8 cycles it gains 0.45 liter and dispenses 0.075 liter. How much water is in the tank after the 8 cycles?

A. 4.8 liters
B. 3.0 liters
C. 5.4 liters
D. 6.0 liters

Correct answer: A. 4.8 liters
Each cycle adds a net 0.375 liter. Eight cycles add 3.0 liters. Add the starting 1.8 liters to get 4.8 liters.

15. Two identical trays carrying 8 identical jars have a total mass of 12.60 kilograms. The same two trays carrying 5 of those jars have a total mass of 8.25 kilograms. What is the mass of one empty tray?

A. 1.45 kilograms
B. 1.00 kilogram
C. 0.50 kilogram
D. 0.725 kilogram

Correct answer: C. 0.50 kilogram
The difference of 4.35 kilograms comes from three jars, so each jar has a mass of 1.45 kilograms. Subtract five jars’ 7.25 kilograms from 8.25. The two trays weigh 1 kilogram together, so one weighs 0.50 kilogram.