Multiplication and Equal-Group Puzzles

Use this key to check answers and read the explanations.

1. Seven trays each hold zero muffins. How many muffins do the trays hold altogether?
   A. 0
   B. 1
   C. 7
   D. 70
   Correct answer: A. 0
   Every tray has zero muffins. Seven groups of zero still total zero.

2. Eight teams each earn 6 points. How many points do all the teams earn?
   A. 46
   B. 42
   C. 48
   D. 56
   Correct answer: C. 48
   Multiply 8 by 6. Eight groups of six give 48 points.

3. A sticker sheet has 5 rows with 9 stickers in each row. How many stickers are on the sheet?
   A. 40
   B. 45
   C. 50
   D. 54
   Correct answer: B. 45
   The array shows 5 groups of 9. Their product is 45.

4. Which multiplication expression has the same product as 14 × 6 because it reverses the order of the factors?
   A. 10 × 8
   B. 14 × 7
   C. 16 × 4
   D. 6 × 14
   Correct answer: D. 6 × 14
   Changing the order of the factors does not change the product. Both 14 × 6 and 6 × 14 equal 84.

5. What is 70 × 30?

A. 210
B. 2,100
C. 2,010
D. 21,000

Correct answer: B. 2,100
Write 70 as 7 tens and 30 as 3 tens. The product is 21 hundreds, or 2,100.

6. A delivery sends 8 boxes of 27 blank cards each. How many blank cards are in the delivery?

A. 216
B. 186
C. 206
D. 224

Correct answer: A. 216
Eight groups of 20 give 160 cards, and eight groups of 7 give 56 more. Together they make 216.

7. What is 34 × 26?

A. 904
B. 784
C. 864
D. 884

Correct answer: D. 884
Break 26 into 20 and 6. The partial products are 680 and 204. Their sum is 884.

8. Which expression is exactly one less than 20 × 20?

A. 19 × 20
B. 18 × 22
C. 19 × 21
D. 20 × 21

Correct answer: C. 19 × 21
The target is 399 because 20 × 20 is 400. Multiplying 19 by 21 gives 399. The other products are 396, 380 and 420.

9. A supply room has 5 crates. Each crate has 12 trays, and each tray has 8 labels. How many labels are in all the crates?

A. 480
B. 96
C. 440
D. 600

Correct answer: A. 480
A crate holds 12 times 8, or 96 labels. Five crates hold 5 times 96, or 480 labels.

10. What is 36 × 99?

A. 3,664
B. 3,600
C. 3,546
D. 3,564

Correct answer: D. 3,564
Multiplying 36 by 100 gives 3,600. Since 99 is one less than 100, subtract one group of 36 to get 3,564.

11. A room has 12 rows of 18 chairs. In each of 2 rows, 4 chairs are reserved. How many chairs are unreserved?

A. 212
B. 216
C. 208
D. 180

Correct answer: C. 208
All rows together contain 12 times 18, or 216 chairs. Subtract 2 times 4, or 8 reserved chairs, to get 208.

12. Plan A uses 24 boxes with 16 parts in each. Plan B uses 20 boxes with 19 parts in each. Which plan ships more parts, and by how many?

A. Plan B by 4 parts
B. Plan A by 4 parts
C. Plan A by 20 parts
D. The plans ship the same number.

Correct answer: B. Plan A by 4 parts
Plan A ships 384 parts. Plan B ships 380 parts. Plan A ships four more.

13. An old layout uses 8 shelves with 15 bins per shelf and 6 folders per bin. A new layout uses 10 shelves with 12 bins per shelf and 8 folders per bin. How many more folders does the new layout hold?

A. 320
B. 120
C. 180
D. 240

Correct answer: D. 240
Each layout has 120 bins. The new layout fits 2 more folders in each bin, for 120 times 2, or 240 additional folders.

14. An event has 275 participants who each need 3 name labels. The organizers already have 18 packs of 40 labels. What is the fewest additional packs of 40 they need?

A. 3
B. 2
C. 4
D. 7

Correct answer: A. 3
The event needs 825 labels and already has 720, so it is short 105 labels. Two packs provide only 80. Three provide 120 and cover the shortage.

15. A full case holds 12 cartons, and each carton holds 8 snack bars. A delivery contains some full cases and 2 additional full cartons. Altogether it contains 496 bars. How many full cases arrived?

A. 6
B. 4
C. 5
D. 7

Correct answer: C. 5
The two additional cartons hold 16 bars, leaving 480 in full cases. One full case holds 96 bars. Five cases hold 480.