Grade 3 Unit 1 test: What multiplication and division mean (answer key)

10 questions, 15 points

ANSWERS AT A GLANCE

1. 2 × 5 = 10; 10 teddy bears.
2. 4 × 10 = 40; 40 cups.
3. No. 3 × 4 = 12 and 3 × 5 = 15, so 14 is skipped.
4. 3 crayons
5. 6 bags
6. 4 × 6 = 24 and 6 × 4 = 24; 24 tiles.
7. 48 ÷ 6 = 8 and 48 ÷ 8 = 6
8. She stopped before 0. She forgot 6 − 6 = 0. So 24 ÷ 6 = 4.
9. 5 rows of 2 dots; 5 × 2 = 10.
10. Jack's friends. Each of Aisha's friends gets 5; each of Jack's friends gets 9.

WORKED SOLUTIONS

1. The toy shelf has 2 rows of 5 teddy bears. How many teddy bears are there? (1 point)

ANSWER

2 × 5 = 10; 10 teddy bears.

SOLUTION

There are 2 rows, and each row is a group of 5. So there are 2 × 5 = 10 teddy bears.

2. A seed tray has 4 rows of 10 cups. How many cups are there? (1 point)

ANSWER

4 × 10 = 40; 40 cups.

SOLUTION

Each row has 10 cups. Skip-count by tens, one number for each of the 4 rows. The last number is 40.

So 4 × 10 = 40 cups.

3. Mia has 14 crackers. Can she put them all in 3 equal rows? Circle yes or no.

yes no (1 point)

ANSWER

No. 3 × 4 = 12 and 3 × 5 = 15, so 14 is skipped.

SOLUTION

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Build 3 equal rows and try each row size.

3 rows of 4 is 3 × 4 = 12. That is 2 crackers short.

3 rows of 5 is 3 × 5 = 15. That is 1 cracker too many.

No row size gives 14, so the answer is no.

4. Ben has 18 crayons for 6 tables. Each table gets the same number. How many crayons does each table get? (1 point)

ANSWER

3 crayons

SOLUTION

This is sharing. There are 6 equal groups, one for each table.

6 × ☐ = 18. Since 6 × 3 = 18, each table gets 3 crayons.

So 18 ÷ 6 = 3.

5. Hannah has 18 marbles. Each bag holds 3. How many bags can Hannah fill? (1 point)

ANSWER

6 bags

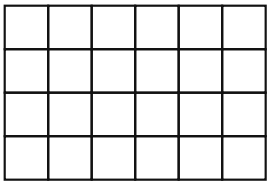
SOLUTION

This is grouping. Each bag holds 3.

☐ × 3 = 18. Since 6 × 3 = 18, Hannah can fill 6 bags.

So 18 ÷ 3 = 6.

6. Here is a tile floor. Write two multiplications for it. How many tiles are there? (2 points)



ANSWER

4 × 6 = 24 and 6 × 4 = 24; 24 tiles.

SOLUTION

By rows: there are 4 rows of 6 tiles, so 4 × 6 = 24.

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By columns: there are 6 columns of 4 tiles, so 6 × 4 = 24.

Both count the same floor, so it has 24 tiles. One point for each correct multiplication with the total.

7. Write two division facts that come from 6 × 8 = 48. (2 points)

ANSWER

48 ÷ 6 = 8 and 48 ÷ 8 = 6

SOLUTION

48 is 6 groups of 8. So 48 shared into 6 groups gives 8 each: 48 ÷ 6 = 8.

48 is also 8 groups of 6. So 48 ÷ 8 = 6.

SCORING

1 point for each correct division fact.

8. Zoe finds 24 ÷ 6 by taking away sixes.

24 − 6 = 18, 18 − 6 = 12, 12 − 6 = 6

She says 24 ÷ 6 = 3. What did she forget? Write the right answer. (2 points)

ANSWER

She stopped before 0. She forgot 6 − 6 = 0. So 24 ÷ 6 = 4.

SOLUTION

Repeated subtraction stops only when nothing is left. Zoe stopped at 6.

One more take-away: 6 − 6 = 0. That makes 4 subtractions, so 24 ÷ 6 = 4.

Check: 4 × 6 = 24.

SCORING

1 point for saying she must take away 6 once more to reach 0; 1 point for 24 ÷ 6 = 4.

9. Kofi counts an array of dots by rows. He says one number for each row: 2, 4, 6, 8, 10. How many rows are there? How many dots are in each row? Write a multiplication. (2 points)

ANSWER

5 rows of 2 dots; 5 × 2 = 10.

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SOLUTION

Kofi says 5 numbers, one for each row, so there are 5 rows.

He counts up by 2 each time, so each row has 2 dots.

The array is 5 rows of 2: 5 × 2 = 10 dots. One point for the rows and row size, one point for the multiplication.

10. Aisha shares 20 strawberries equally among 4 friends. Jack shares 18 strawberries equally between 2 friends. Whose friends get more strawberries each? (2 points)

ANSWER

Jack's friends. Each of Aisha's friends gets 5; each of Jack's friends gets 9.

SOLUTION

Aisha: 20 ÷ 4 = 5, since 4 × 5 = 20.

Jack: 18 ÷ 2 = 9, since 2 × 9 = 18.

9 is more than 5, so Jack's friends get more each, even though he has fewer strawberries.

SCORING

1 point for both shares (5 and 9); 1 point for naming Jack's friends.

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