Lesson 5-1

Friday, October 11, 2019 2:18 PM

MB 239

Name

Lesson 5-1
Use Patterns and Mental Math to Divide

I can ...
use patterns to find quotients.

Content Standard 5.NBT.B.6
Mathematical Practices MP.2, MP.3, MP.6, MP.7, MP.8

Solve & Share

A bakery sells muffins to local grocery stores in boxes that hold 20 muffins each. How many boxes are used if 60 muffins are sold? 600 muffins? 6,000 muffins? *Solve this problem any way you choose.*

Find the answer for 60 muffins. Then you can look for relationships to help find the answers for 600 and 6,000 muffins. *Show your work!*

Number of Muffins Sold	Number of Muffins per Box	Number of Boxes
60	20	3
600	20	30
6,000	20	300

3 x 20 = 60
30 x 20 = 600
300 x 20 = 6,000
Check

Dividend ÷ Divisor = Quotient

* You can cross out the same number of zeros from the dividend and the divisor.
* Any zeros left in the dividend are added to the quotient.

Look Back! MP.8 Generalize How can you use multiplication to help you divide 6,000 by 20?

2 x 3 = 6 so 20 x 3 = 60. 20 has 1 zero and my product has 1 zero. 20 x 300 = 6,000
20 has 1 zero, 300 has 2 zeros so the product 6,000 must have 3 zeros.

6,000 ÷ 20 =
600 tens ÷ 2 tens = 300

Learn Glossary A-Z

Essential Question How Can Patterns Help You Divide Multiples of 10?

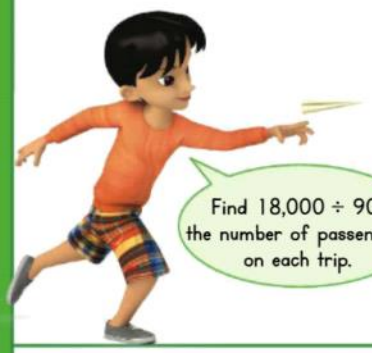
A

A jet carries 18,000 passengers in 90 trips.

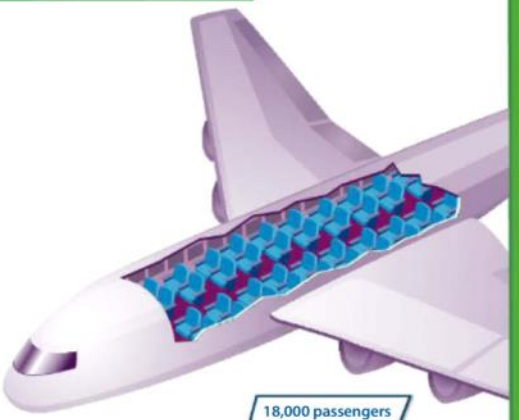
Essential Question: How Can Patterns Help You Divide Multiples of 10?

A

A jet carries 18,000 passengers in 90 trips. The plane is full for each trip. How many passengers does the plane hold?



Find 18,000 ÷ 90 the number of passengers on each trip.



18,000 passengers in 90 trips

B Think of a basic fact to help you.
18 ÷ 9 = 2

Think about multiples of 10:

180 ÷ 90 = 18 tens ÷ 9 tens = 2

1,800 ÷ 90 = 180 tens ÷ 9 tens = 20

18,000 ÷ 90 = 1,800 tens ÷ 9 tens = 200

C The pattern shows that
18,000 ÷ 90 = 200.

So, the jet can hold 200 passengers during each trip.

200 × 90 = 18,000

Multiply to check your answer.

Convince Me! MP.7 Look for Patterns If the jet above carried 10,000 people in 50 trips, how many people did it carry each trip? The jet carried the same number of people each trip.

10,000 ÷ 50 = 200

200 × 50 = 10000

200 people

What basic fact helped you find the answer?

10 ÷ 5 = 2

Name _____

Guided Practice

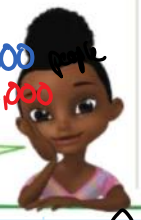
Do You Understand?

1. MP.8 Generalize Why is 210 ÷ 30 the same as 21 tens ÷ 3 tens?

The zero in the ones placed is changed to the word tens.

2. A jet carried 12,000 people in 40 trips. If the jet was full each trip, how many people did it carry for each trip?

12,000 ÷ 40 = 300 people
300 × 40 = 12,000



Do You Know How?

In 3–9, find each quotient. Use mental math.

3. 210 ÷ 30 = 21 tens ÷ 3 tens = 7
7 × 30 = 210

4. 480 ÷ 60 = 48 tens ÷ 6 tens = 8
8 × 60 = 480

5. 15,000 ÷ 30 = 1,500 tens ÷ 3 tens = 500
500 × 30 = 15,000

6. 8,100 ÷ 90 = 90
90 × 90 = 8,100

7. 2,800 ÷ 70 = 40
40 × 70 = 2,800

8. 30,000 ÷ 50 = 600
600 × 50 = 30,000

9. 1,800 ÷ 60 = 30
30 × 60 = 1,800

Complete 17, 21, 25, 30 (18 kg = 18,000 g), 31

Independent Practice

Leveled Practice In 10–25, use mental math to find the missing numbers.

10. 560 ÷ 70 = 56 tens ÷ 7 tens = ____

11. 360 ÷ 60 = 36 tens ÷ 6 tens = ____

12. 6,000 ÷ 50 = 600 tens ÷ 5 tens = ____

13. 24,000 ÷ 60 = 2,400 tens ÷ 6 tens = ____

14. 2,000 ÷ 20 = ____

15. 6,300 ÷ 90 = ____

16. ____ ÷ 10 = 24

21,000 ÷ 700 = 30

17. 21,000 ÷ ____ = 700
30
700 × 30 = 21,000

18. 2,500 ÷ 50 = ____

19. 72,000 ÷ ____ = 800

20. 56,000 ÷ ____ = 800

21. ____ ÷ 10,000 = 1
100 × 10 = 1000

22. 45,000 ÷ 90 = ____
32,000 ÷ 400 = 80

23. 42,000 ÷ 70 = ____

24. 64,000 ÷ ____ = 800

25. 32,000 ÷ ____ = 400
80
400 × 80 = 32000

Math Practices and Problem Solving

26. The table shows the number of passengers who flew on airplane flights in or out of one airport. Each flight had the same number of passengers. How many passengers were on each flight?

DATA

Total passengers	27,000
Number of flights	90
Crew members	900

27. **Algebra** A truck delivers 478 dozen eggs to stores in one day. Write and solve an equation to find n, the number of eggs the truck delivers in one day.

28. Paula wants to divide 480 tomatoes equally among 80 baskets. How many tomatoes will Paula put in each basket?

29. **MP.6 Be Precise** Ernesto measured the width of each of the three coins shown below.

0.7 inch | 0.84 inch | 0.74 inch

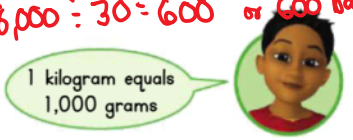
What is the difference in width between the widest coin and the least wide coin?

30. **Higher Order Thinking** A baker uses 30 grams of sea salt for each batch of bread. Sea salt comes in an 18-kilogram package or an 800-gram package. Which size package should the baker buy so that no sea salt is left after all of the batches are made? Explain.

18,000 ÷ 30 = 600

800 ÷ 30 = Not a math fact

18,000 ÷ 30 = 600 or 600 batches of bread.



Common Core Assessment

31. Which is 2,400 divided by 80?

Ⓐ 3
Ⓑ 4
Ⓒ 30 X
Ⓓ 40

2,400 ÷ 80 = 30

30 × 80 = 2400

32. Which expression has a quotient of 70?

Ⓐ 420 ÷ 60
Ⓑ 4,200 ÷ 6
Ⓒ 4,200 ÷ 60
Ⓓ 4,200 ÷ 600