

Lesson 5-2

Thursday, October 24, 2019 1:15 PM

Name: MB 245

Lesson 5-2
Estimate Quotients with 2-Digit Divisors

Problem
Myra's school needs to buy posters for a fundraiser. The school has a budget of \$147. Each poster costs \$13. About how many posters can his school buy? Solve this problem any way you choose.

$147 \div 13 = P$

Reasoning
You can use reasoning to find compatible numbers to estimate quotients. Show your work!

Compatible Numbers

$200 \div 10 = 20$
 $147 \div 13 = P$
 $100 \div 10 = 10^*$
 About 10 posters

$147 \div 13 = P$
 $150 \div 15 = 10$
 $150 \div 10 = 15$

Look Back **MP.1 Make Sense and Persevere** What numbers are close to 147 and 13 that would be easy to divide using mental math?

$200 \div 10 = 20$
 $100 \div 10 = 10$
 $150 \div 15 = 10$
 $150 \div 10 = 15$

- Round the divisor first.
- Find a math fact above and below the dividend.

* Word Problems are special and Screen expects 15's as C.N.

Problem
How Can You Use Compatible Numbers to Estimate Quotients?

Betty earned \$159 by selling 75 bracelets. Each bracelet was the same price. About how much did each bracelet cost?

You know the total amount earned and the number of bracelets.

You can use division to find the price.

The question asks, "About how much?" So, an estimate is enough.

Use compatible numbers to estimate $159 \div 75$. 160 and 80 are close to 159 and 75, and 80 divides 160 evenly. So, 160 and 80 are compatible numbers.

16 can be divided evenly by 8.

Since $160 \div 80 = 2$, $159 \div 75$ is about 2. Betty charged about \$2 for each bracelet.

Use multiplication to check for reasonableness: $2 \times 80 = 160$.

Convince Me! **MP.1 Make Sense and Persevere** Suppose Betty earned \$230 selling the 75 bracelets. Estimate the cost of each bracelet. What compatible numbers did you use?

$240 \div 80 = 3^*$
 $230 \div 75 = X$
 $160 \div 80 = 2$
 Betty's bracelets cost about \$3.

Betty earned \$159 by selling 75 bracelets. Each bracelet was the same price. About how much did each bracelet cost?



$160 \div 80 = 2^*$
 $159 \div 75 = 2$
 $80 \div 80 = 1$
 Each bracelet is about \$2

Guided Practice

Do You Understand?

1. **MP.3 Critique Reasoning** Betty has 425 more bracelets to sell. She wants to store these in bags that hold 20 bracelets each. She estimates she will need about 25 bags. Do you agree? Why or why not?

$500 \div 20 = 25$
 $425 \div 20 = 21$
 $400 \div 20 = 20$

Do You Know How?

In 2-7, estimate using compatible numbers.

2. $287 \div 42$ $30 \div 40 = 0.75$
 $280 \div 40 = 7$

3. $320 \div 11$ $300 \div 10 = 30$

4. $408 \div 72$ $400 \div 70 = 5.7$

5. $554 \div 62$ $550 \div 60 = 9.1$

6. $700 \div 14$ $700 \div 10 = 70$

7. $400 \div 48$ $400 \div 50 = 8$

Complete # 21, 25 & 27

Independent Practice

Levelled Practice In 8–10, fill in the blanks to find each estimate.

8. $412 + 84$
 $400 + \square = \square$

9. $288 + 37$
 $280 + \square = \square$

10. $2,964 + 73$
 $2,800 + \square = \square$

In 11–22, estimate using compatible numbers.

11. $228 + 19$ 12. $1,784 + 64$ 13. $7,260 + 83$

14. $2,280 + 12$ 15. $485 + 92$ $490 : 90 = 6$
 $490 : 90 = 5$ $540 + 61$

17. $1,710 + 32$ 18. $2,740 + 67$ 19. $4,322 + 81$

20. $5,700 + 58$ 21. $7,810 + 84$ $8,000 : 40 = 200$
 $8,000 : 40 = 200$
 $8,000 : 90 = 100$ $6,395 + 84$

Math Practices and Problem Solving

23. MP4 Model with Math The sign shows the price of baseball caps for different pack sizes. Coach Lewis will buy the medium-size pack of caps. About how much will each cap cost? Write an equation to model your work.

Packs of Baseball Caps

25 Small Caps	32 Medium Caps	50 Large Caps
\$180.00	\$270.00	\$360.00

24. MP1 Make Sense and Persevere There are 91 days until the craft sale. Autumn needs to make 817 rings before the sale. She wants to make about the same number of rings each day. About how many rings should she make each day? Explain how Autumn can use compatible numbers to estimate.

25. Higher Order Thinking A company purchased 3,128 bottles of water. Each department needs 55 bottles. Which compatible numbers provide a better estimate for the number of departments that can get the bottles needed — $3,000 \div 60$ or $3,000 \div 50$? Explain. Then make the estimate.

$3,000 : 60$ is better. 60 bottles are more than what is needed so each department will get an underestimate of 50.

26. MP4 Model with Math Rita had \$20. Then she saved \$5.85 each week for 8 weeks. How much money does she have now? Use the bar diagram to solve the problem. Show your work.



Common Core Assessment

27. Lea bought 225 flowers and 12 vases. She put about the same number of flowers in each vase. Which is the best estimate for the number of flowers in each vase?

- A 40 flowers
- B 30 flowers
- C 20 flowers
- D 10 flowers

$225 : 12 = 20$
 $225 : 12 = 20$
 $200 : 10 = 20$

C

28. A school has 617 students. Each class has between 28 and 32 students. Which is the best estimate of the number of classes in the school?

- A 14 classes
- B 20 classes
- C 25 classes
- D 30 classes