

Homework & Practice 10-1

Use an Open
Number Line to
Multiply

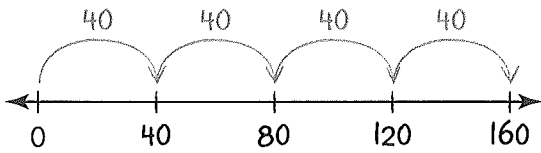
Another Look!

Herman's mother bought 4 tickets to the circus. Each ticket cost \$40. How much did she spend on tickets?



You can use an open number line to find $4 \times \$40$. Describe any patterns!

Show 4 jumps of 40 on a number line.



$$4 \times \$40 = \$160$$

4 tickets cost \$160.

$$1 \times 40 = 40$$

$$2 \times 40 = 80$$

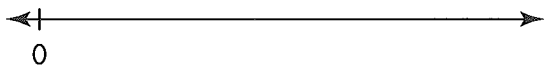
$$3 \times 40 = 120$$

$$4 \times 40 = 160$$

The pattern in the products is like the pattern when you multiply by 4, but with an extra 0 in the ones place.

In 1–4, use an open number line to find the product.

1. 4×90



2. 8×40



3. 7×50

4. 5×80

5. Harry says " 5×8 is 5 groups of 8 ones. 5 times 8 equals 40." Complete the sentences to describe 5×80 in a similar way.

5×80 is 5 groups of 8 _____, 5 times 80 equals _____.

6. © **MP.4 Model with Math** Nursen collects trading cards. How many cards come in 3 packages? Explain what math you used to solve this problem.



7. **Higher Order Thinking** For his birthday, Gil got 4 packages of trading cards. He already had 75 cards. How many cards did he have after his birthday?

8. **Math and Science** Shawn has two fields on his farm. He plants two types of corn. Each field has 60 rows of cornstalks. Type A grows better so there are 8 cornstalks in each row. Type B does not grow as well so there are only 3 cornstalks in each row. How many cornstalks are in each field?

9. **A-Z Vocabulary** Define *multiple*. Give an example of a multiple.

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10. There are 20 pencils in each box. Dean has 6 boxes of pencils.

Part A

How many pencils does Dean have in all?
Show how to use a number line to solve.

Part B

Dean gets 3 more boxes of 20 pencils. Explain how you can change your number line from Part A to show this. How many pencils does Dean have now?

Homework & Practice 10-2

Use Properties
to Multiply

Another Look!

Find 4×70 .

Use equivalent expressions to solve a simpler problem.



It can be easier to multiply by 10! You can use properties to think of the problem as multiplying by 10.

You can group factors.

$$4 \times 70 = 4 \times (7 \times 10)$$

$$4 \times 70 = (4 \times 7) \times 10$$

$$4 \times 70 = 28 \times 10 = 280$$

$$\text{So, } 4 \times 70 = 280$$

You can decompose a factor.

$$4 \times 70 = (2 + 2) \times 70$$

$$4 \times 70 = (2 \times 70) + (2 \times 70)$$

$$4 \times 70 = 140 + 140 = 280$$

$$\text{So, } 4 \times 70 = 280$$

In 1–6, find the product using properties of multiplication.

1. $8 \times 40 = 8 \times (\underline{\quad} \times 10)$

$$8 \times 40 = (8 \times \underline{\quad}) \times 10$$

$$8 \times 40 = \underline{\quad} \times 10 = \underline{\quad}$$

2. $2 \times 90 = \underline{\quad} \times (\underline{\quad} \times 10)$

$$2 \times 90 = (\underline{\quad} \times \underline{\quad}) \times 10$$

$$2 \times 90 = (\underline{\quad}) \times 10 = \underline{\quad}$$

3. $6 \times 20 = (3 + \underline{\quad}) \times 20$

$$6 \times 20 = (3 \times \underline{\quad}) + (3 \times \underline{\quad})$$

$$6 \times 20 = \underline{\quad} + \underline{\quad} = \underline{\quad}$$

4. $4 \times 80 = 4 \times (\underline{\quad} \times 10)$

$$4 \times 80 = (4 \times \underline{\quad}) \times 10$$

$$4 \times 80 = \underline{\quad} \times 10 = \underline{\quad}$$

5. $7 \times 70 = \underline{\quad} \times (\underline{\quad} \times 10)$

$$7 \times 70 = (\underline{\quad} \times \underline{\quad}) \times 10$$

$$7 \times 70 = \underline{\quad} \times 10 = \underline{\quad}$$

6. $8 \times 60 = (4 + \underline{\quad}) \times 60$

$$8 \times 60 = (4 \times \underline{\quad}) + (4 \times \underline{\quad})$$

$$8 \times 60 = \underline{\quad} + \underline{\quad} = \underline{\quad}$$

7. © **MP.7 Use Structure** A warehouse has 9 crates. Each crate has 20 boxes of cereal. How many boxes of cereal does the warehouse have? Explain how to use properties to solve the problem.

8. © **MP.3 Construct Arguments** Hank gets 9 cases of CDs. He wants to record his band's song on 250 CDs. There are 30 CDs in a case. Did Hank buy enough CDs? Explain.

9. $32 \div 4 =$ _____
List 2 other facts that belong to the same fact family.

10. **Algebra** Kelsey writes the equation $6 \times ? = 180$. What value makes Kelsey's equation true?

11. © **MP.6 Be Precise** Josie bikes 40 miles each month for 5 months. She multiplies 40×5 . What unit should she use for the product: miles or months? Explain.

12. **Higher Order Thinking** June says that $5 \times 28 = 140$. She uses the reasoning shown below. Explain whether you agree or disagree with June's reasoning.

$$\begin{aligned} 5 \times 28 &= 5 \times (4 \times 7) \\ &= (5 \times 4) \times 7 \\ &= 20 \times 7 = 140 \end{aligned}$$

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13. Which numbers are multiples of 70?
Choose all that apply.

- 7
- 14
- 210
- 270
- 560

14. Which products are equal to 300?
Choose all that apply.

- 3×10
- 6×50
- 8×40
- 5×60
- 30×10

Homework & Practice 10-3

Multiply by Multiples of 10

Another Look!

You can use basic facts to help you multiply by numbers that are multiples of 10.

Find 6×40 .

First find 6×4 .

$$6 \times 4 = 24$$

Then write one zero after the product.

$$6 \times 40 = 240$$

Below are different ways to solve 2×70 .

$$2 \times 70$$

$$2 \times 70 = 2 \times (7 \times 10)$$

$$2 \times 7 = 14$$

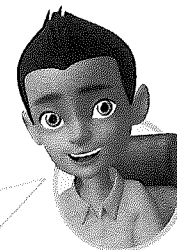
$$2 \times 70 = (2 \times 7) \times 10$$

$$2 \times 70 = 140$$

$$2 \times 70 = 14 \times 10$$

$$2 \times 70 = 140$$

You can use a basic fact or properties of multiplication to solve 2×70 .



In **1** and **2**, use basic facts to help you multiply.

1. Find 3×80 .

Basic fact: $3 \times \underline{\quad} = \underline{\quad}$

Show multiplication by 10 by writing a after the product of the fact.

$$3 \times 80 = \underline{\quad}$$

2. Find 9×50 .

Basic fact: $\underline{\quad} \times \underline{\quad} = \underline{\quad}$

Show multiplication by 10 by writing a after the product of the fact.

$$9 \times 50 = \underline{\quad}$$

In **3–11**, complete each equation.

3. $5 \times 6 = \underline{\quad}$

4. $8 \times 7 = \underline{\quad}$

5. $3 \times 6 = \underline{\quad}$

$$50 \times 6 = \underline{\quad}$$

$$80 \times 7 = \underline{\quad}$$

$$3 \times 60 = \underline{\quad}$$

6. $30 \times 9 = \underline{\quad}$

7. $9 \times 80 = \underline{\quad}$

8. $60 \times 6 = \underline{\quad}$

9. $5 \times 50 = \underline{\quad}$

10. $7 \times 60 = \underline{\quad}$

11. $4 \times 30 = \underline{\quad}$

12. Explain why there are two zeros in the product of 5×40 .

13. © MP.4 Model with Math Tonya lined up 4 rows of train tracks. In each row there are 20 trains. How many trains are there? Explain how you can represent this problem.

14. © MP.5 Use Appropriate Tools Which tool would you use to measure the area of a rectangle: counters, square tiles, or triangle pattern blocks? Explain why you chose that tool.

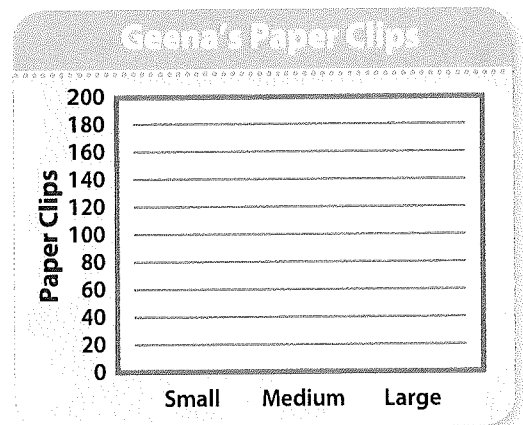
15. Math and Science There are 3 plots in Kevin's garden. Last year, Kevin planted 10 lilies in one plot. This year, there are 30 lilies on each plot. How many total lilies are on Kevin's land now?

16. Higher Order Thinking Noah takes about 200 steps in an hour. About how many steps does Noah take in 4 hours? Fill in the table. Look for a pattern.

Time	1 hour	2 hours	3 hours	4 hours
Number of Steps				

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17. Geena has 4 boxes of small paper clips, 3 boxes of medium paper clips, and 5 boxes of large paper clips. Each box has 40 paper clips. Complete the bar graph to show Geena's paper clips.



Homework & Practice 10-4

Look For and Use
Structure

Another Look!

Find the missing products in the table.

Tell how you can make use of structure to solve this problem.

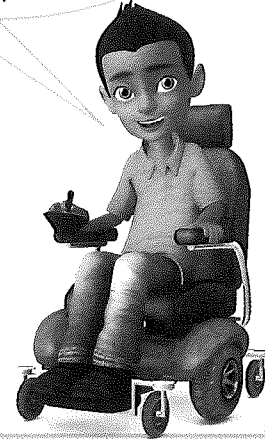
- I can look for things in common to find a pattern.
- I can describe the patterns I find.
- I can extend a pattern.

Complete the table. Think about patterns or properties you know.

×	10	20	30	40	50	60	70	80	90
3	30	60	90	120	150	180	210	240	270
4	40	80	120	160	200	240	280	320	360
5	50	100	150	200	250	300	350	400	450

One factor is always a multiple of 10. I used patterns I know for multiplying by multiples of 10 to find each missing factor.

When you use structure, you look for and describe patterns that can be used to solve the problem.



© MP.7 Use Structure

Clifton is making different types of necklaces. The necklaces will have either 10, 20, 30, or 40 beads. Clifton starts the table below to find the number of beads he will need if he makes 6, 7, or 8 of each type of necklace.

1. Tell how you can find the products in the table below.

2. Find the missing products in the table to show how many beads Clifton will need for each type of necklace. Think about patterns or properties you know.

×	10	20	30	40
6	60	120		
7	70			
8	80	160		

Exercise Routine

Bernard is training for a race. He performs the same exercise routine every day. In a 7-day week, does Bernard spend more time weight lifting or jogging? How much more time? Answer Exercises 3–6 to solve the problem.

Activity	Time Each Day (minutes)	Time Each Week (minutes)
Walking	10	
Jogging	20	140
Weight lifting	30	
Stretching	5	

3. **MP.4 Model with Math** Identify the hidden question in this problem. What operation can you use to answer the hidden question?

4. **MP.7 Use Structure** Solve the problem. Think about properties or patterns you know. Show your work.

5. **MP.8 Generalize** What step can you repeat to find the time Bernard spends on each activity in 1 week? Complete the table.

6. **MP.3 Critique Reasoning** Jacob solves the problem by adding the time Bernard spends each day jogging and weight lifting. Then he multiplies this sum by 7. Does Jacob’s reasoning make sense? Explain.

Use structure to understand how a pattern works.

