Name _____

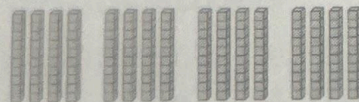**Additional Practice 10-1**
Use Patterns to Multiply

Another Look!

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

You can use place-value blocks or an open number line to find 4 × $40. Describe any patterns!

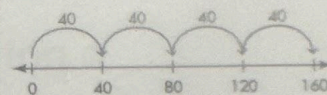**Use place-value blocks.**

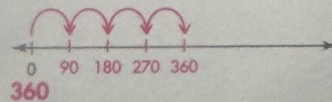4 × 40 is 4 groups of 4 tens = 16 tens or 160.
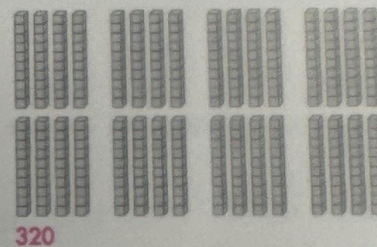
4 tickets cost $160.

Use an open number line.

40   40   40   40

0   40   80   120   160

4 jumps of 40 are 160.   4 × 40 = 160

4 tickets cost $160.

In 1–6, use an open number line or draw place-value blocks to find each product.

1. 4×90

0   90   180   270   360

360

2. 8×40

320

3. 7×50
Check students' work; 350

4. 5×80
Check students' work; 400

5. 7×80
Check students' work; 560

6. 8×30
Check students' work; 240

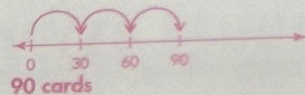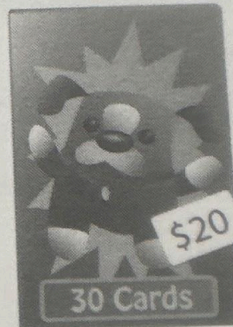**7. Model with Math** Nursen collects trading cards. How many cards come in 3 packages? Show how to use an open number line to solve this problem.

0   30   60   90

90 cards

8. 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?

195 cards

$20

30 Cards

9. enVision® STEM Shawn has two fields on his farm. He plants two types of corn, one in each field. 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. Use place-value blocks to find how many cornstalks are in each field.

**480 cornstalks for Type A;
180 cornstalks for Type B**

10. Use place-value blocks to find 1×70, 2×70, 3×70, and 4×70. Describe any patterns you see in the products.

**70; 140; 210; 280; Sample answer:
The products are multiples of 70 or
7 tens.**

✓ Assessment Practice

11. Select all the expressions that have a product of 270.

- ☐ 3×9
- ☑ 3×90
- ☐ 2×70
- ☐ 7×20
- ☑ 9×30

12. Select all the expressions that have a product of 160.

- ☑ 2×80
- ☑ 4×40
- ☐ 6×40
- ☑ 8×20
- ☐ 9×30

Name _____

Another Look!

You can use basic facts to help multiply by multiples of 10.

Find 6×40.

6×40 equals 6×4 tens.

6×4 tens equals 24 tens.

$6 \times 40 = 240$

Below are different ways to solve 2×70.

2×70 equals 2×7 tens. $2 \times 70 = 2 \times (7 \times 10)$

2×7 tens equals 14 tens. $2 \times 70 = (2 \times 7) \times 10$

$2 \times 70 = 140$ $2 \times 70 = 14 \times 10$

$2 \times 70 = 140$

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

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

1. Find 3×80.

   $3 \times 80 = (3 \times \underline{8}\ )$ tens

   $3 \times 80 = \underline{24}$ tens

   $3 \times 80 = \underline{240}$

2. Find 9×50.

   $9 \times 50 = (9 \times \underline{5}\ )$ tens

   $9 \times 50 = \underline{45}$ tens

   $9 \times 50 = \underline{450}$

In 3–11, complete each equation.

3. $5 \times 6 = \underline{30}$

   $50 \times 6 = \underline{300}$

4. $8 \times 7 = \underline{56}$

   $80 \times 7 = \underline{560}$

5. $3 \times 6 = \underline{18}$

   $3 \times 60 = \underline{180}$

6. $30 \times 9 = \underline{270}$

7. $9 \times 80 = \underline{720}$

8. $60 \times 6 = \underline{360}$

9. $5 \times 50 = \underline{250}$

10. $7 \times 60 = \underline{420}$

11. $4 \times 30 = \underline{120}$

12. Explain why there are two zeros in the product of 5×40.
The product of 5×4 ends in one zero, so the product of 5×40 has 2 zeros.

13. enVision® STEM 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?
90 lilies

14. Use Appropriate Tools Select and use one of the following tools to find the area of the rectangle: circular counters, square-inch tiles, or rulers.

1 in.

2 in.
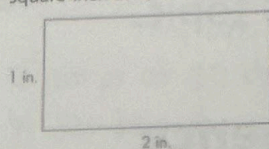
Square-inch tiles; 2 square inches

15. 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.

0   20   40   60   80
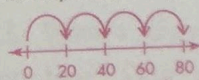
80 trains; Sample answer: I can use an open number line to show 4 jumps of 20.

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.
800 steps

Time	1 hour	2 hours	3 hours	4 hours
Number of Steps	200	400	600	800

Assessment Practice

17. Geena is taking inventory. She records the number of small, medium, large, and jumbo paper clips in the table at the right. Match each equation with its product to find the total number of each size of paper clip in stock.

	90	160
$2 \times 80 = ?$	☐	✔
$4 \times 40 = ?$	☐	✔
$3 \times 30 = ?$	✔	☐
$1 \times 90 = ?$	✔	☐

Size	Number of Boxes	Number of Paper Clips Per Box
Small	2	80
Medium	4	40
Large	3	30
Jumbo	1	90

Name _____

Practice Video Tools Games

Another Look!

Find 4×70.

Use equivalent expressions to solve a simpler problem.

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

You can group factors.

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

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

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

So, $4 \times 70 = 280$.

You can decompose a factor.

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

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

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

So, $4 \times 70 = 280$.

In 1–6, show how to find each product using properties of multiplication.

1. $8 \times 40 = 8 \times (\underline{4} \times 10)$

   $8 \times 40 = (8 \times \underline{4}) \times 10$

   $8 \times 40 = \underline{32} \times 10 = \underline{320}$

2. $2 \times 90 = \underline{2} \times (\underline{9} \times 10)$

   $2 \times 90 = (\underline{2} \times \underline{9}) \times 10$

   $2 \times 90 = (\underline{18}) \times 10 = \underline{180}$

3. 6×20

   Check students' work; 120

4. 4×80

   Check students' work; 320

5. 7×70

   Check students' work; 490

6. 8×60

   Check students' work; 480

7. 8×50

   Check students' work; 400

8. 3×40

   Check students' work; 120

9. 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.

180 boxes of cereal; Sample answer:
$9 \times 20 = 9 \times (2 \times 10)$
$9 \times 20 = (9 \times 2) \times 10$
$9 \times 20 = 18 \times 10$
$9 \times 20 = 180$

10. Hank rents 9 cases of plates. He has 250 guests attending the banquet. There are 30 plates in each case. Did Hank rent enough plates? Explain.

Yes; $30 \times 9 = 270$; $270 > 250$

---

11. $32 \div 4 = \underline{8}$
List two other facts that belong to the same fact family.
Sample answer: $32 \div 8 = 4$;
$4 \times 8 = 32$

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

30

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13. 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.

Miles; The product is how many miles Josie bikes in all.

14. 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.

$5 \times 28 = 5 \times (4 \times 7)$
$\qquad = (5 \times 4) \times 7$
$\qquad = 20 \times 7 = 140$

Agree; June breaks apart 28 into 4×7 and uses the Associative Property to multiply the 4 and 5 first.

☑ **Assessment Practice**

15. Which products are equal to 490? Select all that apply.

- [ ] 4×9
- [ ] $7 \times (1 \times 10)$
- [x] 7×70
- [ ] 4×90
- [x] $7 \times (7 \times 10)$

16. Which products are equal to 300? Select all that apply.

- [ ] 3×10
- [x] 6×50
- [x] $6 \times (5 \times 10)$
- [x] 5×60
- [x] 30×10

Name _____

Practice Video Tools Games

Additional 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.

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

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.

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.
   Sample answer: I can look for things in common to find a pattern. One factor is always a multiple of 10. So, I can use place value or properties to find each product.

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	180	240
7	70	140	210	280
8	80	160	240	320

✓ Performance Task

Exercise Routine

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

Sample answers given.

Activity	Time Each Day (minutes)	Time Each Week (minutes)
Walking	10	70
Jogging	20	140
Weight lifting	30	210
Stretching	5	35

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

> How long does Bernard spend weight lifting each week? I can use multiplication.

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

> Weight lifting; $30 \times 7 = 3 \times 7 \times 10 = 21 \times 10 = 210$ minutes; $210 - 140 = 70$. Bernard spends 70 more minutes weight lifting than jogging each week.

Use structure to understand how a pattern works.

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

> Each time is for 1 day, so I can multiply each time by 7 to find the time for each week.

6. 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.

> No; Sample answer: Jacob needs to find the difference between the times spent on the two activities, not the total time spent doing both in a week.