

Unit **4**

Addition and Subtraction on the Number Line

Essential Questions

- How can I use a number line to represent numbers within 100?
- How can I use a number line to represent addition and subtraction?



Unit Story: A Seed's Journey

You can read the Unit Story with your student by visiting the Unit Story page on the Caregiver Hub.

Unit Investigation

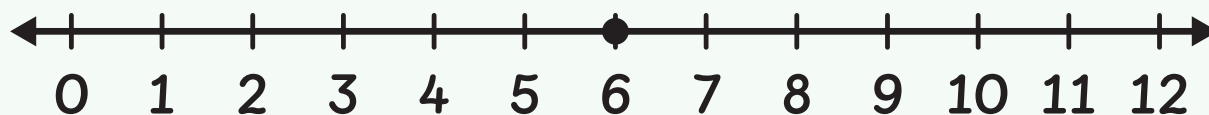
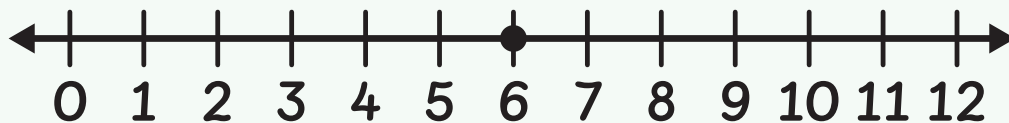
Lesson 1 is the Unit Investigation. Students organize numbers within 20 in a line formation with some numbers missing to build curiosity and apply their own knowledge in a variety of ways. Use the **Caregiver Connection** to help students continue to explore the math they will see in the unit.

Caregiver Connection

Students may enjoy creating their own number cards to organize. As students become comfortable with numbers within 20, encourage them to create and organize number cards within 50 or 100.

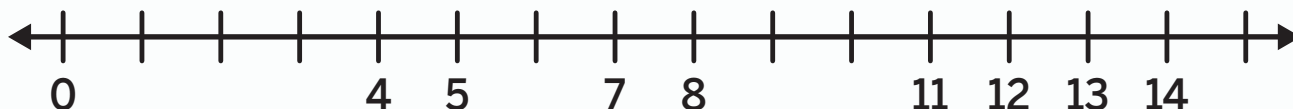
Summary | Lesson 2

A **number line** is another way to represent numbers. The tick marks on a number line are equally spaced. The numbers, tick marks, and **points** on a number line represent distances from 0.



Try This

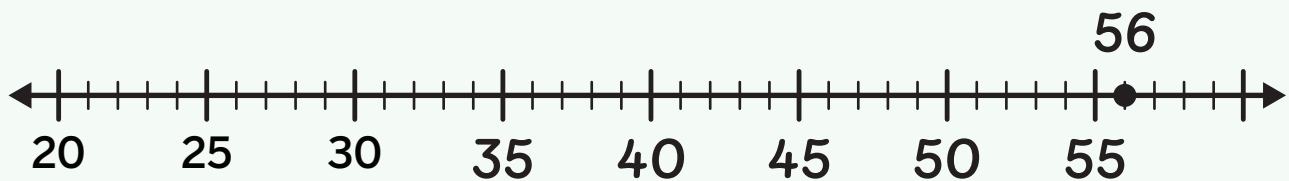
Use the number line for Problems 1–3.



- 1 Label each tick mark on the number line.
- 2 Locate 10 on the number line. Mark it with a point.
- 3 Locate 15 on the number line. Mark it with a point.

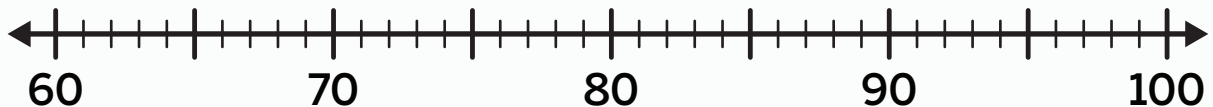
Summary | Lesson 3

Each tick mark on a number line represents a distance from 0. You can use labeled tick marks on a number line to help you locate other numbers.

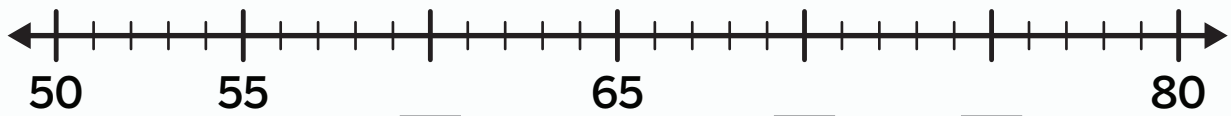


Try This

- 1 Locate 79 on the number line. Mark it with a point.

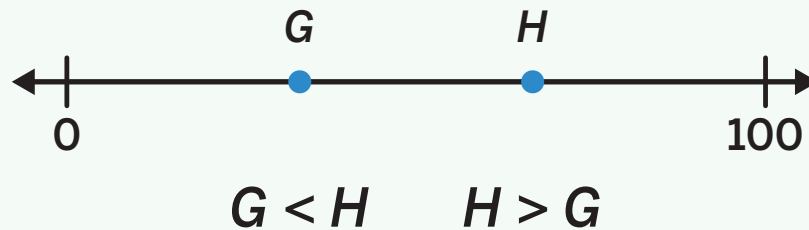


- 2 Fill in the missing numbers on the number line. Locate 74 and mark it with a point.



Summary | Lesson 4

You can use a number line to justify comparison statements. Numbers increase to the right and decrease to the left on a number line.



Try This

Use the number line for Problems 1–4.



- 1 Locate 13 on the number line. Mark it with a point.
- 2 Locate 27 on the number line. Mark it with a point.

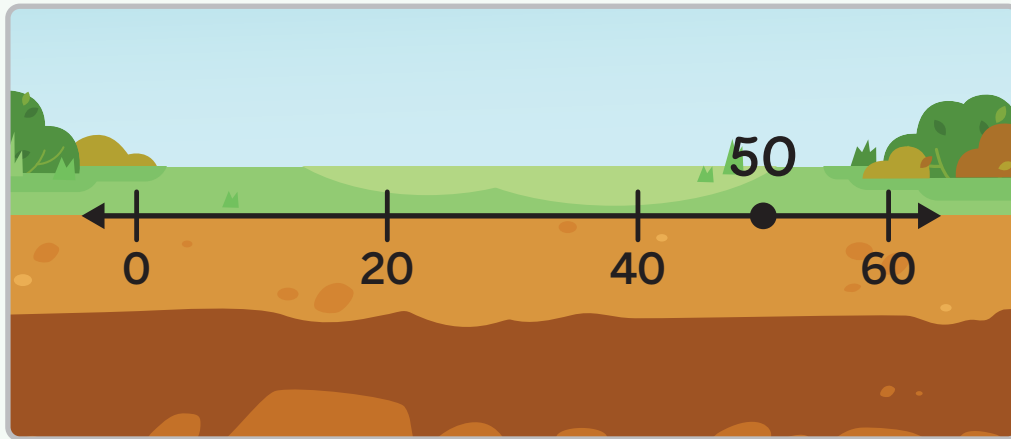
For Problems 3 and 4, fill in the blank with $<$, $>$, or $=$.

3 13 _____ 27

4 27 _____ 13

Summary | Lesson 5

You can use labeled points to estimate the number that is represented by an unlabeled point.



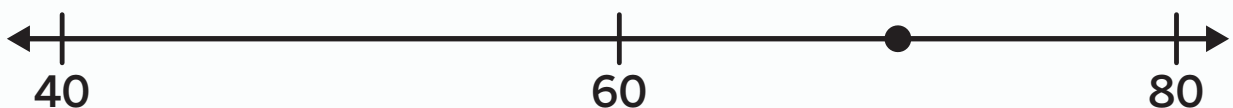
Try This

For Problems 1 and 2, write an estimate for where the point is located on the number line. You can show your work on the number line if it is helpful.

- 1 What number could this be? _____



- 2 What number could this be? _____



Sub-Unit 1 | Summary

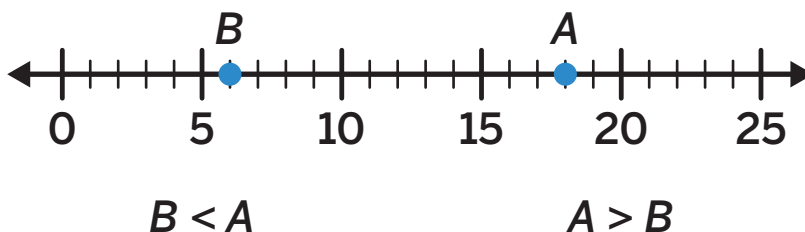
In this sub-unit . . .

- We saw that a number line can be used to represent numbers. The numbers, tick marks, and points on a number line represent distances from 0.



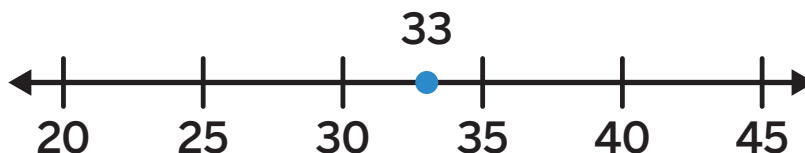
🔥 **Math tip:** Tick marks on a number line are equally spaced.

- We noticed that numbers on a number line increase to the right and decrease to the left.



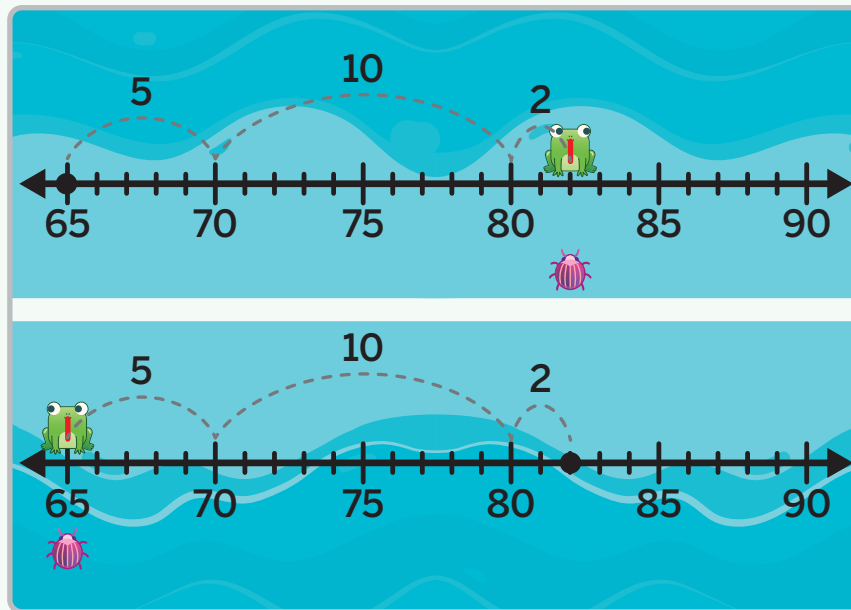
🔥 **Math tip:** You can use this idea to compare numbers on a number line.

- We saw that using labeled points and tick marks can help to locate and label other numbers on a number line.



Summary | Lesson 6

You can use a number line to represent counting on and counting back.

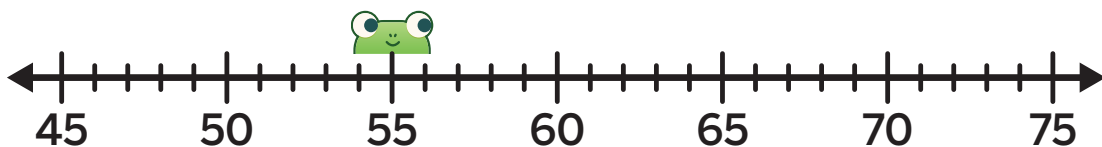


Try This

Use the number line to show how the frog could jump by 1, 2, 5, or 10 to reach the bug.

 Draw

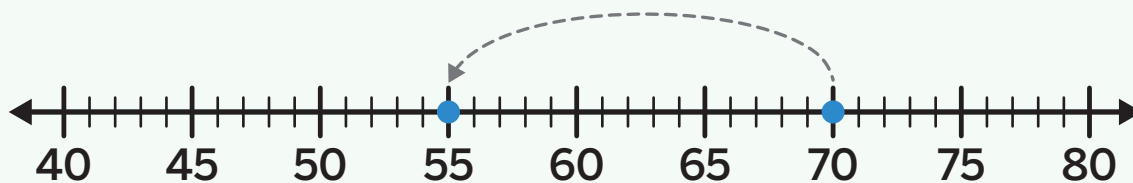
- 1 There is a bug located at 62.



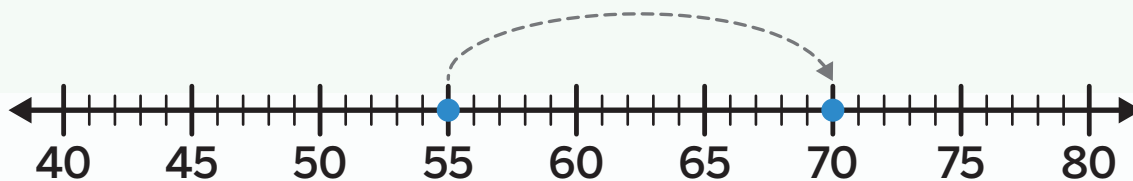
Summary | Lesson 7

You can use arrows to represent addition and subtraction on a number line. An arrow pointing to the right can represent addition and an arrow pointing to the left can represent subtraction.

$$70 - 15 = 55$$

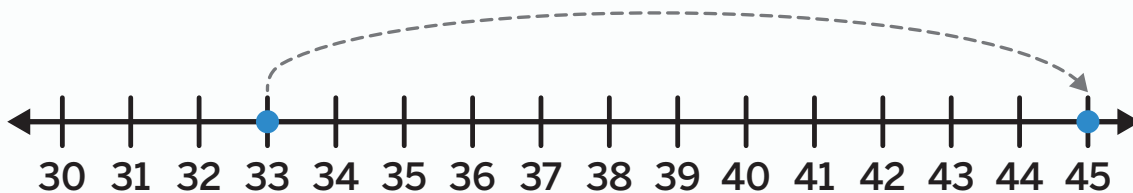


$$55 + 15 = 70$$



Try This

- 1 Circle the equation that is represented by the number line.

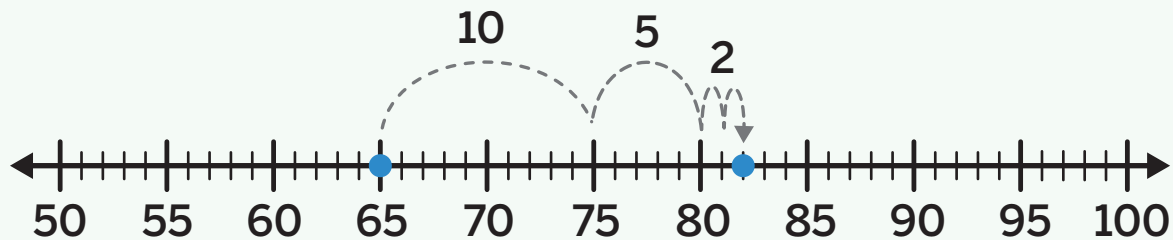


$$45 - 12 = 33$$

$$33 + 12 = 45$$

You can use number lines to represent addition and subtraction. More than 1 jump may be needed to represent certain strategies.

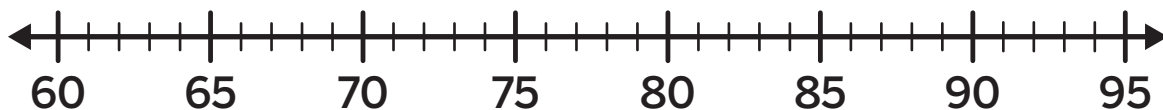
$$65 + 17 = 82$$



Try This

- 1 Use the number line to represent the equation $90 - 22 = 68$.

 Show your thinking.

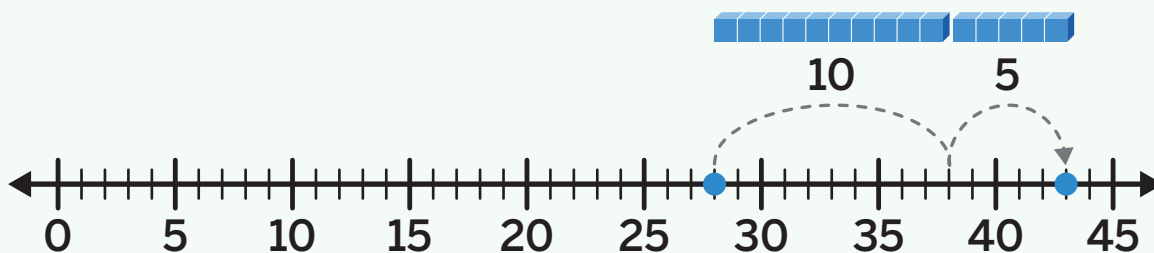


Summary | Lesson 9

There are many different addition strategies that can be used to find the value of an expression. A number line can help represent those strategies.

$$28 + 15 = 43$$

$$28 + 10 + 5 = 43$$



Try This

- 1 Find the value of the expression $28 + 60$.



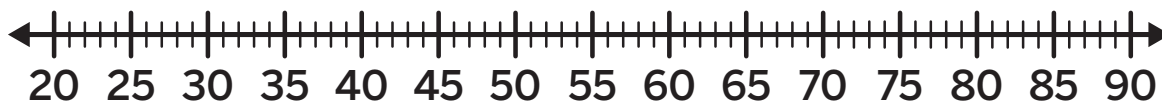
Show your thinking.

answer: _____

- 2 Use the number line to represent the expression $28 + 60$.



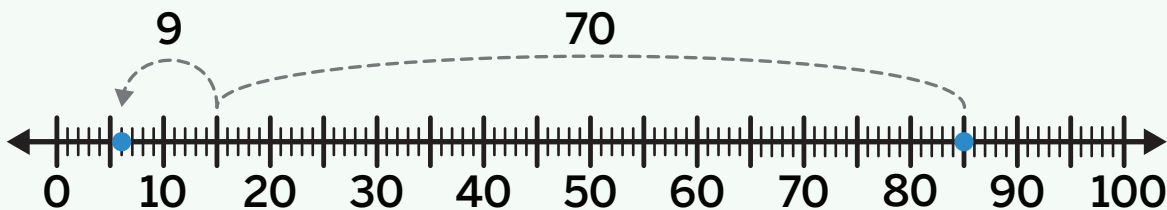
Show your thinking.



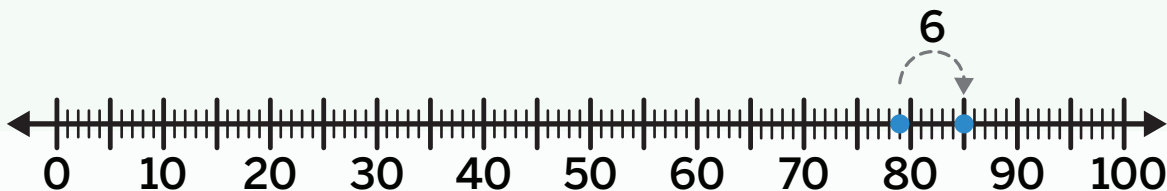
You can count up or count back to find the difference between 2 numbers. Both strategies can be represented on a number line.

$$85 - 79$$

Count back



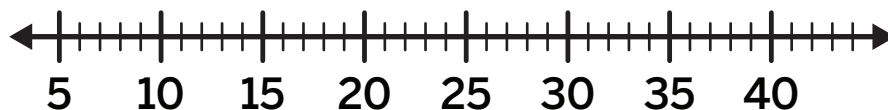
Count up



Try This

- 1 Use the number line to represent the expression $33 - 26$.

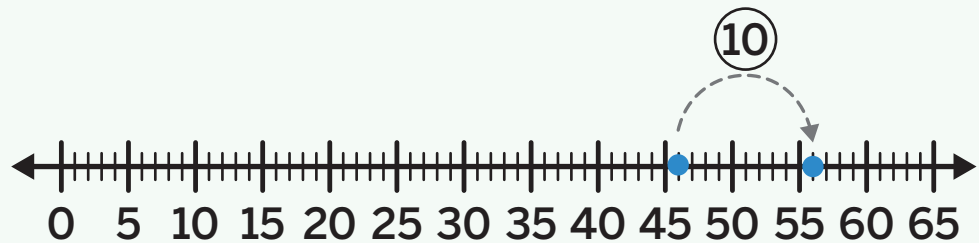
 Show your thinking.



Number lines can be used to represent addition and subtraction strategies. Depending on the chosen strategy, the unknown value can be represented by the jumps, starting point, or ending point.



$$56 - 46 = \underline{\quad}$$



Try This

- 1 Solve the story problem. Write an equation that represents the story problem and underline the answer. Use a number line if it is helpful.

A jackfruit tree needs 40 inches of rainfall. Last year, there were 28 inches of rainfall. How many *more* inches of rain did the tree need?

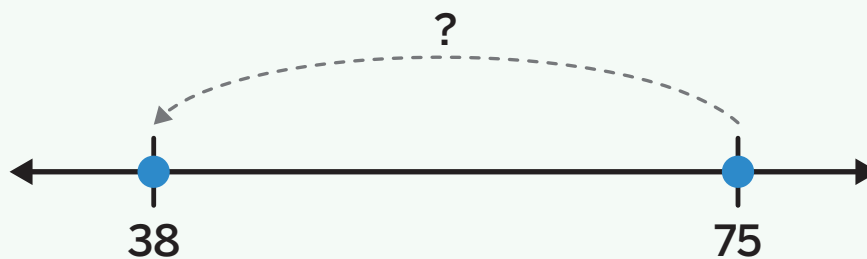


Show your thinking.

answer: _____ equation: _____

Open number lines are number lines without numbers or tick marks. You can draw points, tick marks, numbers, and arrows on them to help you make sense of story problems. Using open number lines can help you decide on a strategy to solve.

**There are 75 pods on a silver wattle tree.
Some fall off. Now there are 38 pods.
How many pods fell off?**



Try This

- 1 Read and solve the story problem in the Summary. Use a number line if it is helpful. Write an equation that represents the story problem and underline the answer.

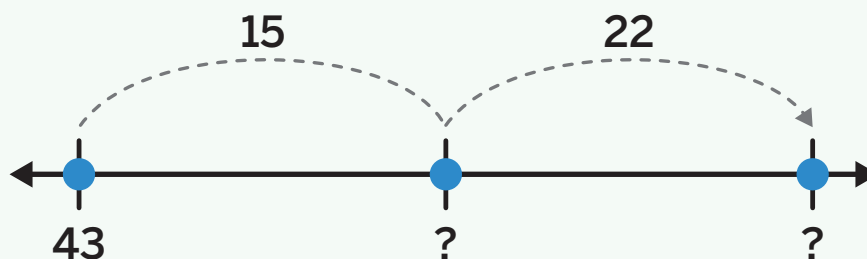
 **Show your thinking.**

answer: _____

equation: _____

Summary | Lesson 13

You can use open number line representations to help you make sense of the known and unknown amounts in two-step story problems.



Try This

- 1 Represent and solve the story problem. Write 1 or more equations that represent the story problem and underline the answer.

There were 54 butterflies in the garden on Monday. On Tuesday, there were 27 *fewer* butterflies. On Wednesday, there were 62 *more* butterflies than on Tuesday. How many butterflies were in the garden on Wednesday?



Show your thinking.

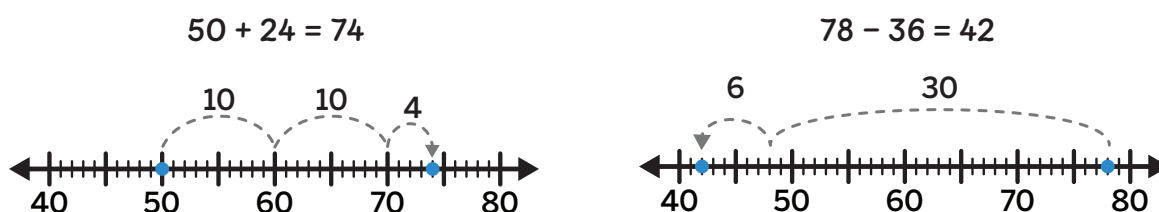
answer: _____

equation(s): _____

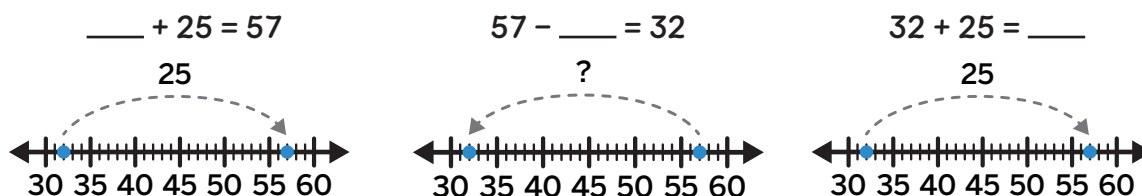
Sub-Unit 2 | Summary

In this sub-unit . . .

- We explored how to represent counting strategies on a number line and represented addition and subtraction strategies by using arrows that point to the right or to the left.

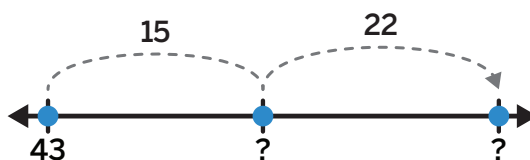


- We noticed that, on a number line, the unknown value can be represented as the starting point, the jump, or the ending point.



- We saw that open number lines, or number lines without numbers or tick marks, can be used to represent and make sense of one-step and two-step story problems.

There were 43 ants in a line. As they walked, 15 ants joined the line. Then another 22 ants joined. How many ants are in the line now?

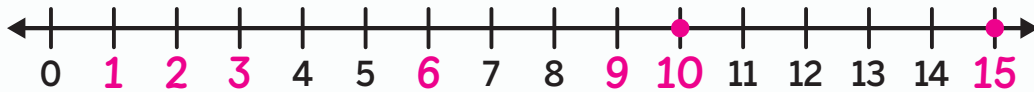


 **Math tip:** Open number lines can help you choose a strategy to solve.

Try This | Answer Key

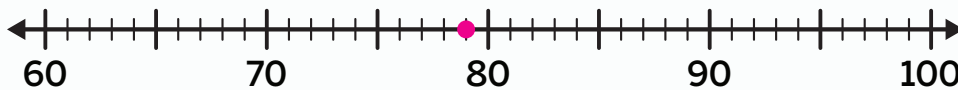
Lesson 2

1-3

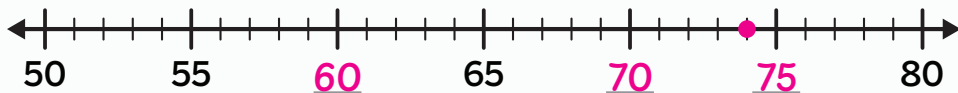


Lesson 3

1

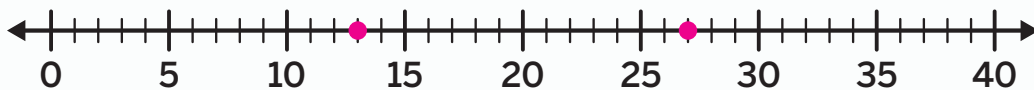


2



Lesson 4

1-2



3

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4

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Lesson 5

1

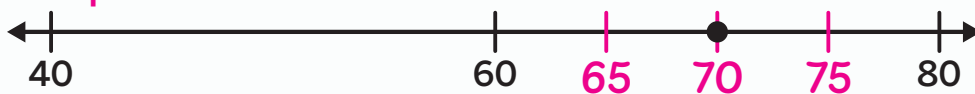
Sample work:



Possible responses: 32 or 33

2

Sample work:

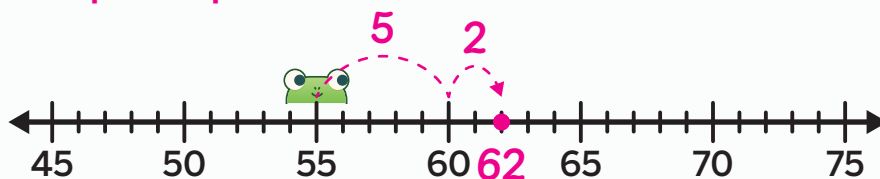


Possible responses: 67 to 70

Lesson 6

1

Sample response:

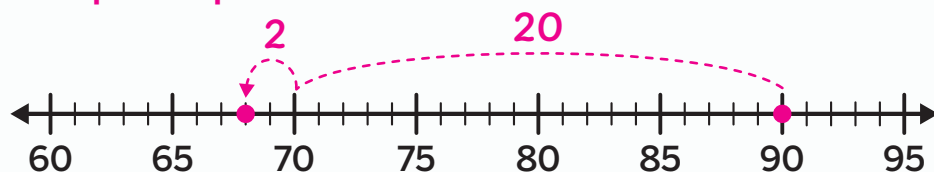


Lesson 7

1 $33 + 12 = 45$

Lesson 8

1 Sample response:



Lesson 9

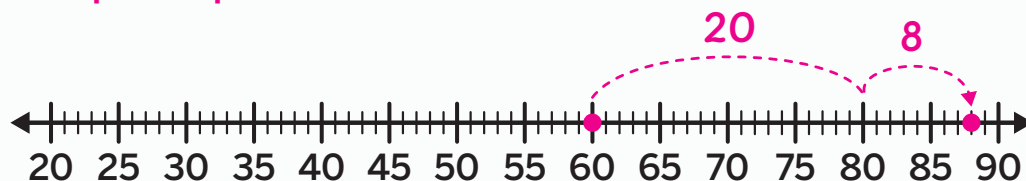
1 Sample work:

$$60 + 20 = 80$$

$$80 + 8 = 88$$

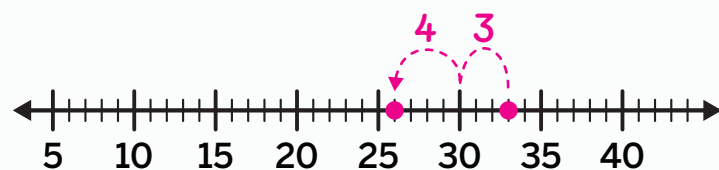
answer: 88

2 Sample response:



Lesson 10

1 Sample work:



Lesson 11

1 Sample work and equation:

$$40 - 10 = 30$$

$$30 - 2 = 28$$

$$10 + 2 = 12$$

answer: 12 inches

equation: $40 - 28 = \underline{12}$

Lesson 12

1 Sample work and equation:

$$38 + 2 = 40$$

$$40 + 30 = 70$$

$$70 + 5 = 75$$

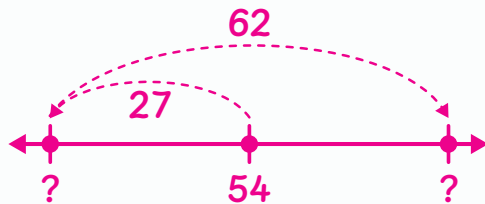
$$30 + 2 + 5 = 37$$

answer: 37 pods

equation: $75 - \underline{37} = 38$

Lesson 13

1 Sample work and equation:



$$54 - 20 = 34$$

$$34 - 7 = 27$$

$$27 + 60 = 87$$

$$87 + 2 = 89$$

answer: 89 butterflies

equation: $54 - 27 + 62 = \underline{89}$