

# PA3-13 Geometric Patterns

Ronin makes a growing or increasing pattern with squares. He creates a T-table to keep track of the number of squares.

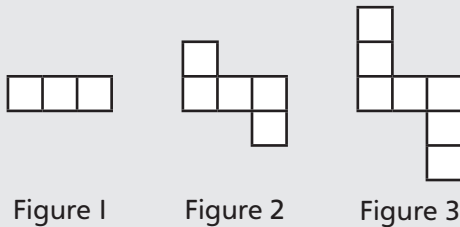


Figure Number	Number of Squares
1	3
2	5
3	7

+2  
+2  
Add 2 squares each time

The number of squares in the figures makes a growing number pattern: 3, 5, 7.  
The rule for the number pattern is “start at 3 and add 2 each time.”

- I. a) Fill in the T-table for the number of squares in each figure of the geometric pattern. Extend the number pattern.

Pattern A

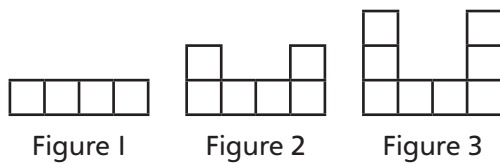


Figure Number	Number of Squares
1	4
2	
3	
4	
5	

Pattern B

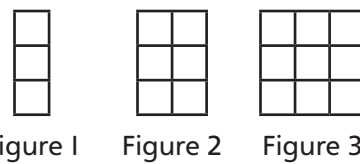


Figure Number	Number of Squares
1	
2	
3	
4	
5	

- b) Write the number pattern and the rule for the number pattern.

A: Number pattern: \_\_\_\_\_

B: Number pattern: \_\_\_\_\_

Rule: \_\_\_\_\_

Rule: \_\_\_\_\_

- c) Ronin has 14 squares. Can he make Figure 5 in each pattern?

A: \_\_\_\_\_

B: \_\_\_\_\_

2. a) Fill in the T-table for the number of squares in each figure of the decreasing geometric pattern.

Pattern A

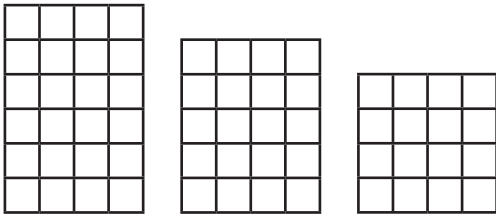


Figure 1      Figure 2      Figure 3

Figure Number	Number of Squares
1	
2	
3	

Pattern B

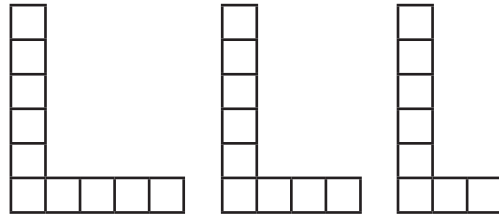


Figure 1      Figure 2      Figure 3

Figure Number	Number of Squares
1	
2	
3	

b) Write the number pattern and the rule for the number pattern.

A: Number pattern: \_\_\_\_\_

B: Number pattern: \_\_\_\_\_

Rule: \_\_\_\_\_

Rule: \_\_\_\_\_

c) How many squares will be in the next figures of the pattern?

A: Figure 4: \_\_\_\_\_ squares

B: Figure 4: \_\_\_\_\_ squares

Figure 5: \_\_\_\_\_ squares

Figure 5: \_\_\_\_\_ squares

Figure 6: \_\_\_\_\_ squares

Figure 6: \_\_\_\_\_ squares

3. Which number do you add or subtract each time? Write the rule for the number pattern.

a) 10 , 8 , 6 , 4 , 2

b) 2 , 5 , 8 , 11 , 14

Start at \_\_\_\_\_

Start at \_\_\_\_\_

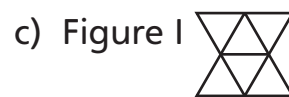
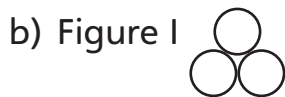
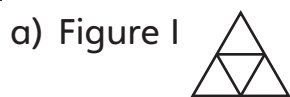
4. Write the rule for the number pattern. On grid paper, sketch a pattern of squares that fits the number pattern. Check by writing a rule for the pattern of squares.

a) 3, 5, 7, 9, 11

b) 16, 13, 10, 7, 4

c) 1, 5, 9, 13, 17

**5.** How many shapes are in Figure 6? How do you know?



**6.** Ella makes a pattern of long rectangles with toothpicks.

Step 1



Step 2



Step 3

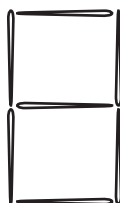


a) Make a T-table for the number of toothpicks Ella needs at each step.

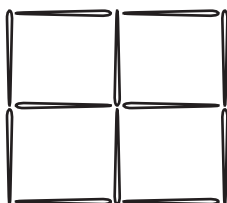
b) Ella has 20 toothpicks. How long is the longest rectangle she can make?

**7.** Jack makes a pattern of rectangles with toothpicks.

Step 1



Step 2



Step 3



a) Make a T-table for the number of toothpicks Jack needs at each step.

b) Jack has 30 toothpicks. How long is the longest rectangle he can make?

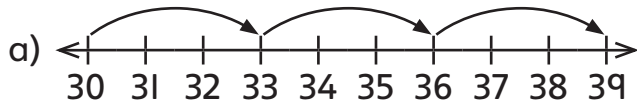
**BONUS** ► Make a T-table for the perimeters of Jack's rectangles.  
What is the perimeter of the longest rectangle Jack can make using 30 toothpicks?

**8.** Sketch a growing or a shrinking geometric pattern on grid paper.  
Write the number pattern and the rule for the number pattern.

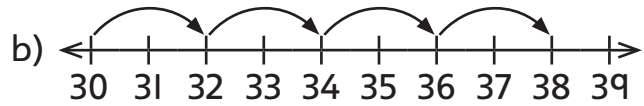
**BONUS** ► Describe your pattern. How many squares do you add or remove? How do you know where to do that?

# PA3-14 Patterns on Number Lines

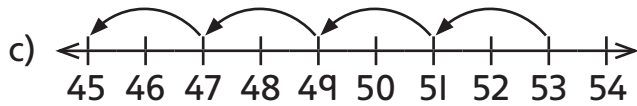
1. Write the number pattern the picture shows.



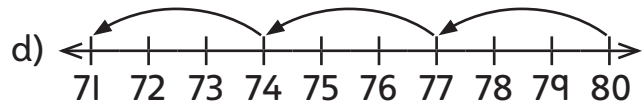
30, 33, 36, 39



\_\_\_\_\_

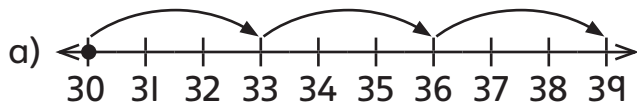


53, 51,



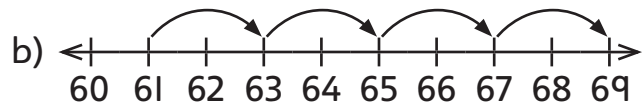
\_\_\_\_\_

2. Draw a dot at the start of the number pattern. Write a rule for the number pattern.

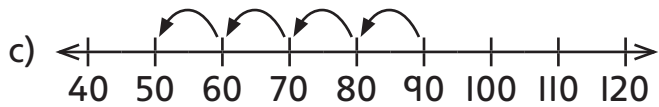


Start at 30. Add 3 each time.

\_\_\_\_\_

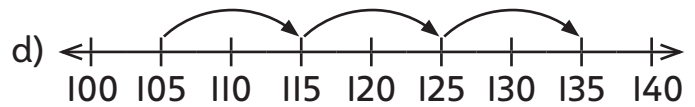


\_\_\_\_\_



\_\_\_\_\_

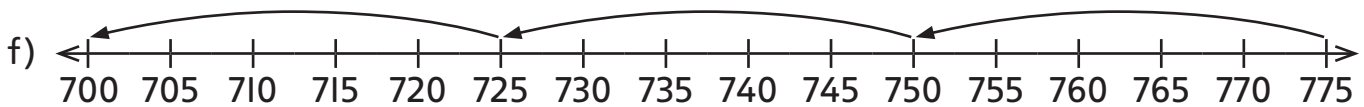
\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_

## BONUS ▶



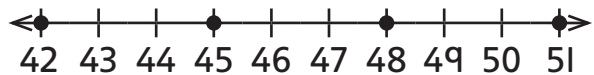
\_\_\_\_\_

3. Draw dots and arrows to show the pattern on the number line.

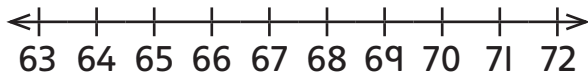
a) 30, 32, 34, 36



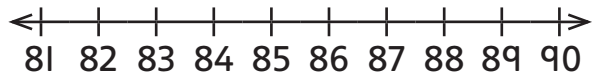
b) 42, 45, 48, 51



c) 72, 69, 66, 63

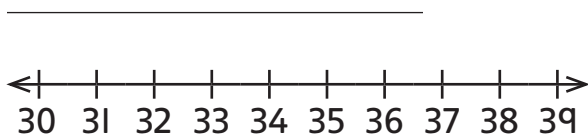


d) 89, 87, 85, 83, 81

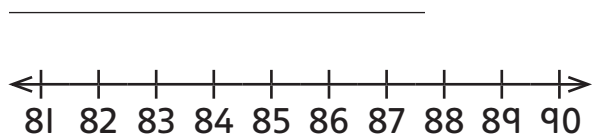


4. Write the first 4 numbers in the number pattern. Show the pattern on the number line.

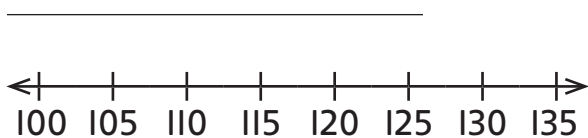
a) Start at 31. Add 2 each time.



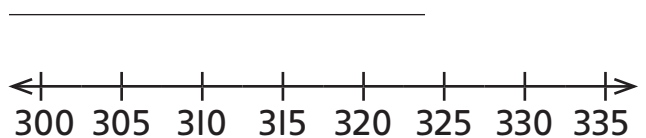
b) Start at 90. Subtract 3 each time.



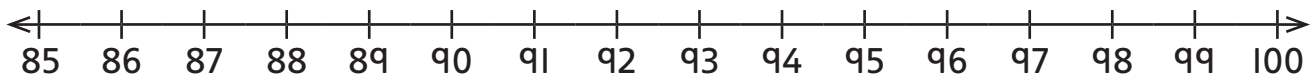
c) Start at 105. Add 5 each time.



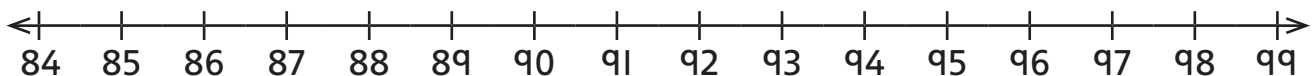
d) Start at 325. Subtract 5 each time.



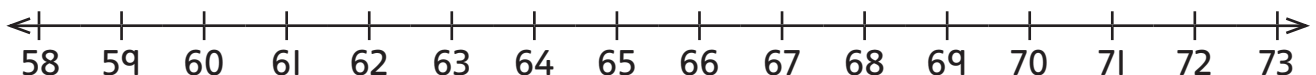
e) Start at 100. Subtract 4 each time. \_\_\_\_\_



f) Start at 99. Subtract 5 each time. \_\_\_\_\_

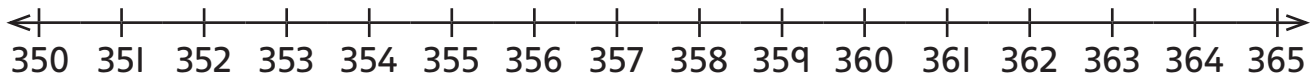


g) Start at 73. Subtract 5 each time. \_\_\_\_\_



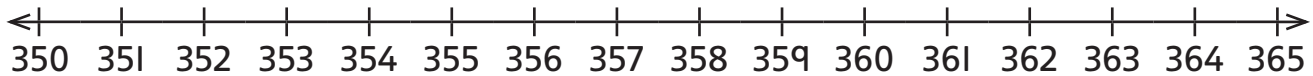
**BONUS** ► Nora writes several more numbers in the pattern for part g) and gets the number 38. Is she correct? \_\_\_\_\_

5. a) Draw an increasing pattern on the number line. Write a rule for the number pattern.



Rule: \_\_\_\_\_

- b) Draw a decreasing pattern on the number line. Write a rule for the number pattern.



Rule: \_\_\_\_\_

6. a) Write a number pattern for the number of blocks in each figure.

Pattern A

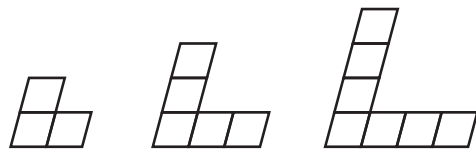


Figure 1

Figure 2

Figure 3

Number pattern: \_\_\_\_\_

Pattern B

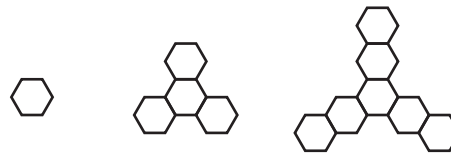


Figure 1

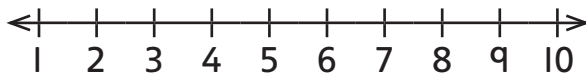
Figure 2

Figure 3

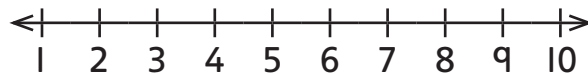
Number pattern: \_\_\_\_\_

- b) Show the number pattern on the number line.

A:



B:



7. Show the pattern for the number of blocks in each figure on the number line. Use the number line to find how many blocks are in Figure 5.



Figure 1

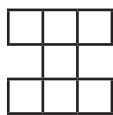


Figure 2

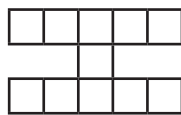


Figure 3

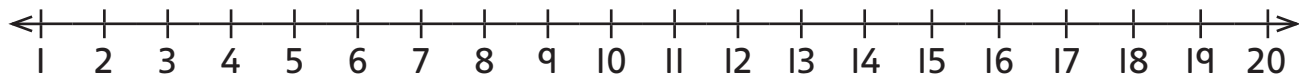


Figure 5 will have \_\_\_\_\_ blocks.

## PA3-I5 Patterns in Charts

1. a) Describe the number pattern in the shaded row.

Start at \_\_\_\_\_, add \_\_\_\_\_ each time.

- b) Describe the number pattern in the shaded column.

\_\_\_\_\_

\_\_\_\_\_

- c) Shade a row in the hundreds chart.

- d) Describe the number pattern in the row you shaded.

\_\_\_\_\_

\_\_\_\_\_

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

2. David shades two diagonal patterns of squares on a hundreds chart.

- a) Describe the pattern in the light shaded squares. ■

\_\_\_\_\_

\_\_\_\_\_

- b) Describe the pattern in the dark shaded squares. ■

\_\_\_\_\_

\_\_\_\_\_

- c) Write nine multiples of 9. Start at 9 and add 9 each time.

\_\_\_\_\_

- d) Circle the multiples of 9 on the hundreds chart.

- e) Do the multiples of 9 appear in a row, in a column, or on a diagonal? \_\_\_\_\_

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

To count forwards by 5s starting at 4, start at 4 and add 5 each time.

$$\begin{array}{c} \textcircled{+5} \quad \textcircled{+5} \quad \textcircled{+5} \\ 4, 9, 14, 19 \end{array}$$

To count backwards by 5s starting at 36, start at 36 and subtract 5 each time.

$$\begin{array}{c} \textcircled{-5} \quad \textcircled{-5} \quad \textcircled{-5} \\ 36, 31, 26, 21 \end{array}$$

3. a) Count forwards by 5s starting at 4.  
Circle the numbers on the hundreds chart.

b) Describe the location of the numbers you circled.

\_\_\_\_\_

\_\_\_\_\_

c) Write the ones digits of the numbers you circled.

\_\_\_\_\_

d) Describe the pattern in the ones digits.

\_\_\_\_\_

e) Karen counts backwards by 5s starting at 94.

Will she say 39? \_\_\_\_\_ Will she say 28? \_\_\_\_\_

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

4. a) Count forwards by 5s starting at 2. Write 6 numbers. \_\_\_\_\_

b) Write the ones digits of the numbers you wrote in part a). \_\_\_\_\_

c) Describe the pattern in the ones digits. \_\_\_\_\_

d) Describe the pattern in the tens digits. \_\_\_\_\_

e) Use the patterns in the ones and the tens digits to write 4 more numbers in the pattern. \_\_\_\_\_

f) Where are the numbers in the pattern on a hundreds chart?

\_\_\_\_\_

g) Shade the numbers on the hundreds chart in Question 3 to check your answer to part f).



5. a) Count backwards by 5s starting at 93. Write 6 numbers.

\_\_\_\_\_

b) Predict: If you continue skip counting, will you say 39? \_\_\_\_\_

Will you say 28? \_\_\_\_\_ How do you know? \_\_\_\_\_

\_\_\_\_\_

### November

6. a) Write four multiples of 7.

$1 \times 7 =$  \_\_\_\_\_

$2 \times 7 =$  \_\_\_\_\_

$3 \times 7 =$  \_\_\_\_\_

$4 \times 7 =$  \_\_\_\_\_

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

b) Circle the multiples of 7 on the calendar.

c) Describe the locations of the multiples of 7 on the calendar.

\_\_\_\_\_

d) Shade one row of the calendar. Describe the pattern in the row.

\_\_\_\_\_

e) Use a different colour to shade a column of the calendar.  
Describe the pattern in the column.

\_\_\_\_\_

### July

7. a) Write five multiples of 6.

$1 \times 6 =$  \_\_\_\_\_

$2 \times 6 =$  \_\_\_\_\_

$3 \times 6 =$  \_\_\_\_\_

$4 \times 6 =$  \_\_\_\_\_

$5 \times 6 =$  \_\_\_\_\_

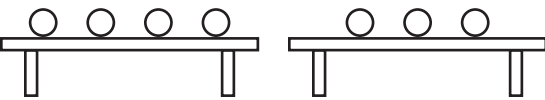
Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

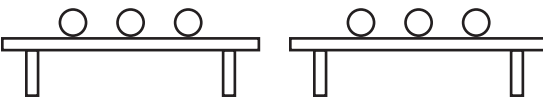
b) Circle the multiples of 6 on the calendar.

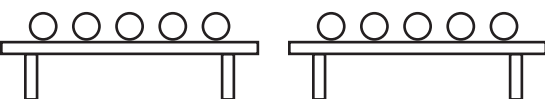
 c) Describe the locations of the multiples of 6 on the calendar.


## PA3-16 Equal and Not Equal

1. Write the number of balls on each table. Write = if the tables have the same number. Write  $\neq$  if they do not have the same number.

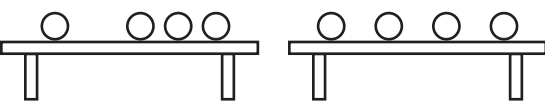
a)   
 4   $\neq$   3

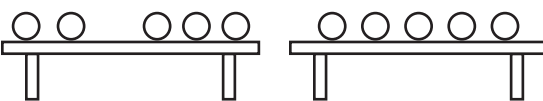
b)   
 \_\_\_\_\_  \_\_\_\_\_

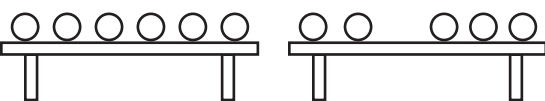
c)   
 \_\_\_\_\_  \_\_\_\_\_

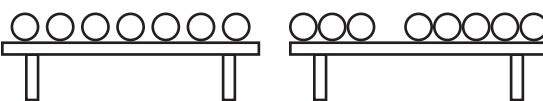
d)   
 \_\_\_\_\_  \_\_\_\_\_

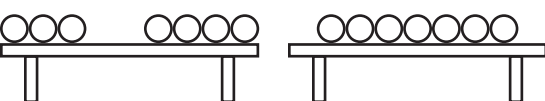
2. Write the number of balls. Write = or  $\neq$  in the box.


a)   
 1 + 3  4


b)   
 \_\_\_\_\_ + \_\_\_\_\_  \_\_\_\_\_


c)   
 \_\_\_\_\_  \_\_\_\_\_ + \_\_\_\_\_

d)   
 \_\_\_\_\_  \_\_\_\_\_ + \_\_\_\_\_

e)   
 \_\_\_\_\_ + \_\_\_\_\_  \_\_\_\_\_

f)   
 \_\_\_\_\_ + \_\_\_\_\_  \_\_\_\_\_

g)   
 \_\_\_\_\_ + \_\_\_\_\_  \_\_\_\_\_

h)   
 \_\_\_\_\_  \_\_\_\_\_ + \_\_\_\_\_

3. Circle the correct addition sentence.

a)  $7 = 3 + 4$

$7 \neq 3 + 4$

b)  $9 = 5 + 3$

$9 \neq 5 + 3$

c)  $8 = 6 + 2$

$8 \neq 6 + 2$

d)  $5 = 3 + 1$

$5 \neq 3 + 1$

e)  $11 + 5 = 16$

$11 + 5 \neq 16$

f)  $12 + 3 = 15$

$12 + 3 \neq 15$

An **equation** is a number sentence that has an **equal sign (=)**.

$$3 + 5 = 8$$



equal sign

The equal sign shows that the left side of the number sentence has the same value as the right side.

4. Circle the number sentences that are equations.

A.  $5 + 7 \neq 13$

B.  $6 < 9$

C.  $15 - 2 = 13$

D.  $4 = 32 \div 8$

E.  $6 \times 5 > 15$

F.  $14 \neq 12 + 3$

5. Write "T" if the equation is true. Write "F" if the equation is false.

a)  $3 + 7 = 10$    T  

b)  $9 + 4 = 12$    F  

c)  $2 + 17 = 18$        

d)  $6 - 2 = 4$        

e)  $24 - 5 = 19$        

f)  $25 - 13 = 11$        

g)  $3 \times 9 = 27$        

h)  $6 \times 7 = 42$        

i)  $56 = 8 \times 8$        

j)  $24 \div 4 = 8$        

k)  $12 \div 3 = 4$        

l)  $6 = 35 \div 5$        

m)  $14 + 13 = 27$        

n)  $9 \times 3 = 28$        

o)  $9 = 45 \div 5$        

p)  $18 - 12 = 7$        

q)  $4 = 15 - 10$        

r)  $8 = 80 \div 10$        

**BONUS ►**

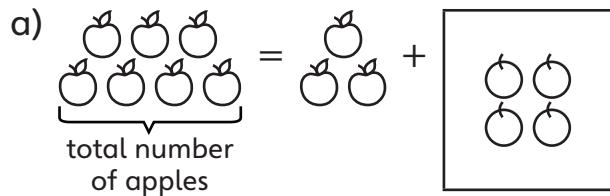
s)  $2 + 4 = 3 \times 2$        

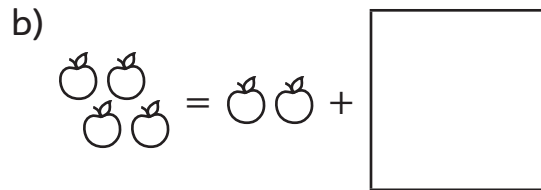
t)  $5 + 6 = 14 - 2$        


u)  $24 \div 6 = 10 - 6$

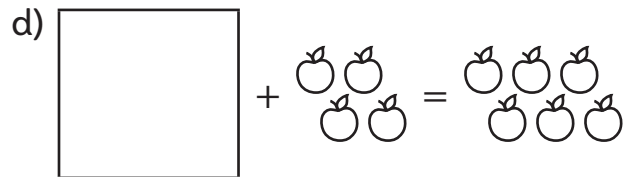
# PA3-17 Addition Equations

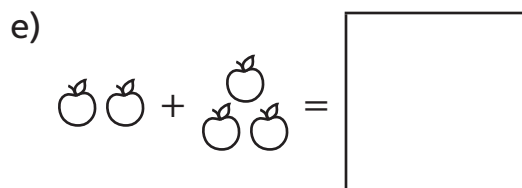
1. Some apples are inside the box and some are outside. Draw the missing apples in the box.

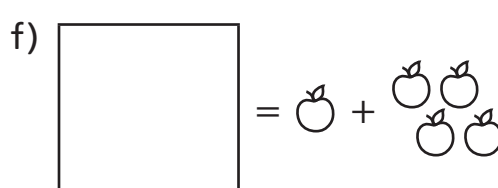
a) 

b) 

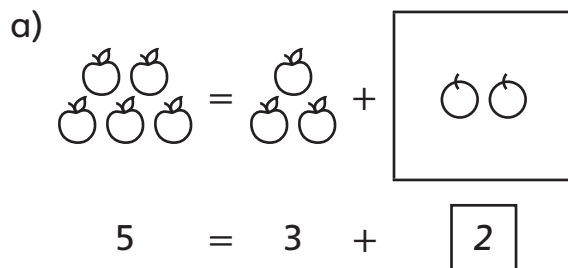
c) 

d) 

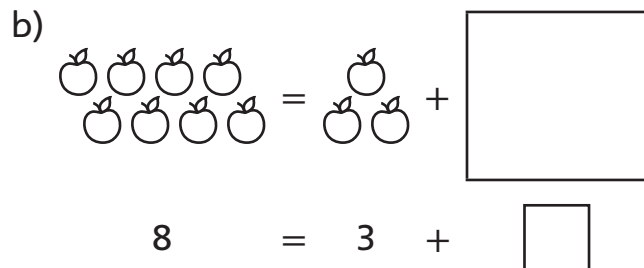
e) 

f) 

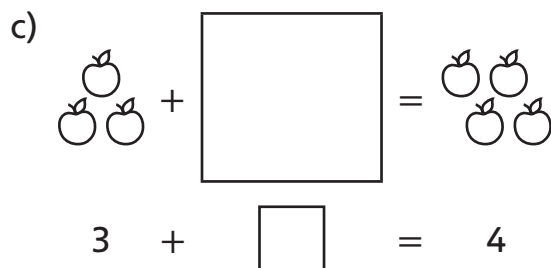
2. Draw the missing apples in the box. Then write the missing number in the smaller box.

a) 

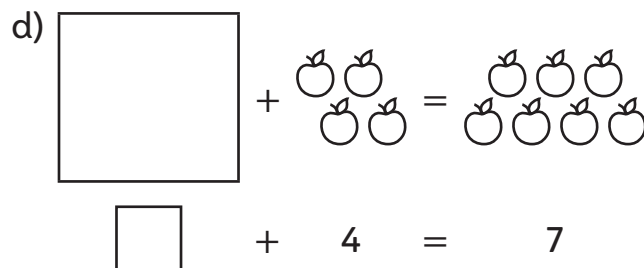
$$5 = 3 + \boxed{2}$$

b) 

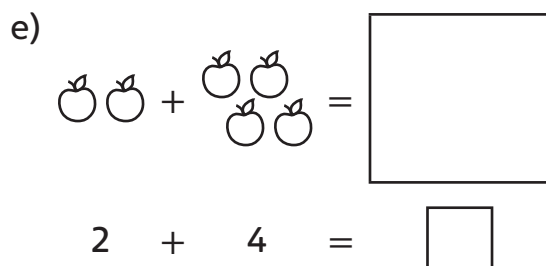
$$8 = 3 + \boxed{\phantom{00}}$$

c) 

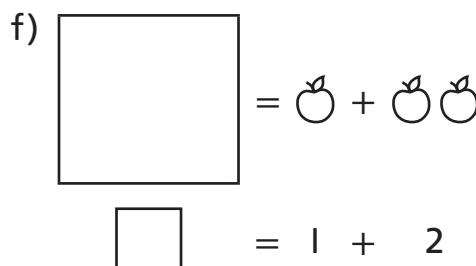
$$3 + \boxed{\phantom{00}} = 4$$

d) 

$$\boxed{\phantom{00}} + 4 = 7$$

e) 

$$2 + 4 = \boxed{\phantom{00}}$$

f) 

$$\boxed{\phantom{00}} = 1 + 2$$

When you find the missing number in the equation, you **solve** it.

3. Draw a picture for the equation. Use your picture to solve the equation.

a)  $5 + \square = 6$

b)  $\square + 4 = 9$

c)  $8 = \square + 3$

d)  $\square = 4 + 4$

To solve  $\square + 3 = 7$ , Megan guesses the unknown number is 3.

Megan checks her guess.  $\square + 3 = 7$  is not true.



6 is too small. To make a bigger sum, she tries 4.

Megan checks her new guess.  $\square + 3 = 7$  is true, so the unknown number is 4.

4. Solve the equation by guessing and checking.

a)  $\square + 3 = 4$

b)  $2 + \square = 9$

c)  $9 = \square + 4$

d)  $10 = 6 + \square$

e)  $5 + 7 = \square$

f)  $\square = 7 + 6$

g)  $15 = 9 + \square$

h)  $\square + 8 = 16$

You can write 2 addition equations and 2 subtraction equations for this picture.



$3 + 4 = 7$

$4 + 3 = 7$

$7 - 3 = 4$

$7 - 4 = 3$

These equations make a **fact family**.

5. Write the fact family for the picture.



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6. Draw a picture for the equation. Write the rest of the fact family.

a)  $4 + 2 = 6$

b)  $6 + 1 = 7$



$2 + 4 = 6, 6 - 2 = 4,$  \_\_\_\_\_

\_\_\_\_\_

$6 - 4 = 2$  \_\_\_\_\_

\_\_\_\_\_

c)  $6 - 1 = 5$

d)  $9 - 4 = 5$

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Some circles are in a box. \_\_\_\_\_

There are 8 circles in total. Anton wants to find how many circles are in the box.

He writes the equation  $3 + \square = 8$ .

Anton subtracts to find the number of circles in the box:  $8 - 3 = \boxed{5}$



7. Draw a picture for the equation. Then write the subtraction to find the missing number.

a)  $7 + \square = 9$

b)  $3 + \square = 10$



$9 - 7 = 2$  \_\_\_\_\_

\_\_\_\_\_

c)  $\square + 4 = 8$

d)  $5 = \square + 1$

\_\_\_\_\_

\_\_\_\_\_

8. Write the subtraction equation to find the missing number.

a)  $7 = 4 + \square$

b)  $10 = \square + 3$

c)  $\square + 6 = 11$

d)  $10 + \square = 19$

$7 - 4 = 3$  \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

e)  $\square + 21 = 32$

f)  $42 + \square = 95$

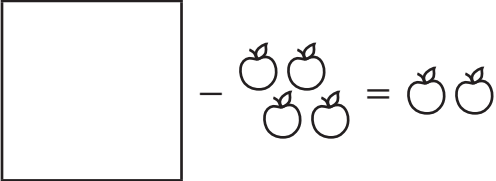
g)  $69 = \square + 14$

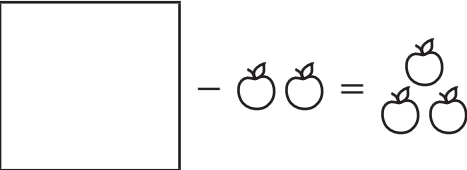
h)  $80 = 36 + \square$


# PA3-18 Subtraction Equations

1. Sam takes some apples from a box. Draw the apples that were in the box before.

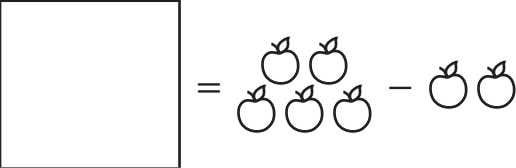
a) 


b) 

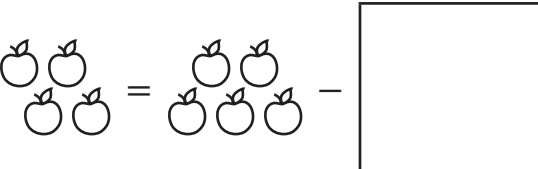
c) 

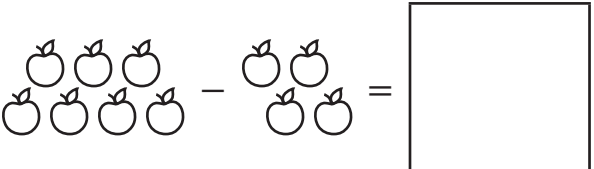
d) 

2. Draw the missing apples. Then write the missing number in the smaller box.

a)   
 = 5 - 2

b)   
 6 -  = 3

c)   
 4 = 5 -

d)   
 7 - 4 =

3. Draw a picture for the equation. Use your picture to solve the equation.

a)  $6 - \square = 1$

b)  $3 = \square - 6$

4. Solve the equation by guessing and checking.

- a)  $\square - 2 = 2$     b)  $3 = \square - 4$     c)  $8 - 3 = \square$     d)  $\square = 10 - 2$   
 e)  $9 - \square = 2$     f)  $3 = 10 - \square$     g)  $8 = \square - 2$     h)  $15 - 7 = \square$   
 i)  $\square - 8 = 10$     j)  $13 = \square - 4$     k)  $28 - 13 = \square$     l)  $7 = \square - 9$   
 m)  $16 - \square = 8$     n)  $8 = 15 - \square$     o)  $8 = \square - 6$     p)  $20 - \square = 20$

Lela takes 3 apples from a box. 2 apples are left in the box.

$$\square - \text{🍏🍏🍏} = \text{🍏🍏}$$

$$\square - 3 = 2$$

Lela adds the number of apples she took out and the number of apples left to find the number of apples that started in the box.

$$3 + 2 = \square$$

$$\text{🍏🍏🍏} + \text{🍏🍏} = \square$$

5. Write an addition equation to find the number of apples that were in the box before.

- a)  $4 = \square - 3$     b)  $\square - 1 = 8$     c)  $10 = \square - 3$     d)  $6 = \square - 4$   
 $3 + 4 = 7$     \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_  
 e)  $\square - 6 = 6$     f)  $\square - 9 = 4$     g)  $9 = \square - 7$     h)  $\square - 10 = 9$   
 \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_  
 i)  $\square - 16 = 6$     j)  $\square - 23 = 14$     k)  $19 = \square - 27$     l)  $\square - 10 = 75$   
 \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_  
 m)  $\square - 21 = 32$     n)  $\square - 42 = 40$     o)  $61 = \square - 11$     p)  $80 = \square - 50$   
 \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_



**REMINDER** ▶ You can write a fact family for this picture.



$$2 + 3 = 5, 3 + 2 = 5, 5 - 3 = 2, 5 - 2 = 3$$

6. Write the rest of the equations in the fact family.

a)  $6 - 2 = 4$ , \_\_\_\_\_

b)  $10 - 7 = 3$ , \_\_\_\_\_

7. Write the other subtraction equation from the same fact family.

a)  $11 - 3 = 8$

b)  $12 - 7 = 5$

c)  $17 - 9 = 8$

\_\_\_\_\_  $11 - 8 = 3$  \_\_\_\_\_

To find the missing number in  $7 - \square = 4$ , use  $7 - 4 = \square$ .

We know  $7 - 4 = 3$ , so  $7 - \boxed{3} = 4$ .

8. Write the other subtraction equation from the same fact family.

Find the number in the box.

a)  $7 - \square = 5$

b)  $9 - \square = 4$

c)  $10 - \square = 2$

\_\_\_\_\_  $7 - 5 = \boxed{2}$  \_\_\_\_\_

\_\_\_\_\_ =  $\square$

\_\_\_\_\_ =  $\square$

d)  $12 - \square = 5$

e)  $14 - \square = 6$

f)  $17 - \square = 10$

\_\_\_\_\_ =  $\square$

\_\_\_\_\_ =  $\square$

\_\_\_\_\_ =  $\square$

**g)**  $32 - \square = 25$

**h)**  $26 = 54 - \square$

**i)**  $17 = 97 - \square$

**9.** Solve the equation.

a)  $\square - 33 = 32$

b)  $42 - \square = 40$

c)  $71 = \square - 14$

d)  $80 = 90 - \square$

e)  $\square = 36 - 28$

f)  $78 - 29 = \square$

g)  $34 = \square - 7$

h)  $\square - 40 = 15$

i)  $\square = 67 - 39$

**BONUS** ▶

j)  $100 - \square = 51$

k)  $71 = \square - 29$

l)  $\square - 100 = 0$

## PA3-19 Using Letters for Unknown Numbers

You can use a letter to stand for the number you do not know.

Instead of  $\square + 5 = 8$ , you can write  $x + 5 = 8$  or  $a + 5 = 8$ .

1. Use  $x$  instead of the box. Rewrite the equation.

a)  $\square + 35 = 70$

\_\_\_\_\_

b)  $24 = \square - 6$

\_\_\_\_\_

c)  $\square = 7 + 59$

\_\_\_\_\_

2. Use  $y$  instead of the box. Rewrite the equation.

a)  $45 = 90 - \square$

\_\_\_\_\_

b)  $102 = \square + 6$

\_\_\_\_\_

c)  $97 - 69 = \square$

\_\_\_\_\_

**REMINDER** ▶ You can use addition to find the missing total.

$$x - 5 = 1$$

$$5 + 1 = 6$$

$$x = 6$$

You can use subtraction to find the missing part.

$$6 - a = 4$$

$$6 - 4 = 2$$

$$a = 2$$

$$2 + y = 8$$

$$8 - 2 = 6$$

$$y = 6$$

3. Solve the equation.

a)  $44 - x = 20$

$$\underline{44 - 20 = 24}$$

$$x = \underline{24}$$

b)  $24 - 6 = n$

\_\_\_\_\_

$$n = \underline{\quad}$$

c)  $15 = 7 + m$

\_\_\_\_\_

$$m = \underline{\quad}$$

d)  $y - 28 = 10$

\_\_\_\_\_

$$y = \underline{\quad}$$

e)  $24 = 6 + b$

\_\_\_\_\_

$$b = \underline{\quad}$$

f)  $35 = x - 7$

\_\_\_\_\_

$$x = \underline{\quad}$$

4. How many numbers can you find that solve the equation  $\square + 5 = 12$ ? Explain.

\_\_\_\_\_

\_\_\_\_\_

5. Rewrite the equation so there is only one operation. Solve the equation.

a)  $25 + 3 = 15 + y$

b)  $4 + 24 + n = 70$

c)  $x - 10 = 35 + 4$

$28 = 15 + y$

$28 - 15 = 13$

$y = 13$

d)  $35 - 10 = b - 15$

e)  $p + 12 = 33 - 5$

**BONUS** ▶  $40 - a = 5 \times 4$

You can also use symbols, such as 😊 or ?, to stand for unknown numbers. Instead of  $\square - 5 = 8$  or  $x - 5 = 8$ , you can write  $\text{😊} - 5 = 8$  or  $? - 5 = 8$ .

6. Use 😊 instead of  $a$ . Rewrite the equation.

a)  $44 - a = 20$

b)  $25 - 6 = a$

c)  $35 = 7 + a$

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

7. Solve the equation.

a)  $? - 8 = 10$

b)  $13 = 8 + \star$

c)  $11 = \text{😊} - 7$

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

? = \_\_\_\_\_

$\star =$  \_\_\_\_\_

$\text{😊} =$  \_\_\_\_\_

d)  $29 - ? = 19$

e)  $50 = \text{☾} + 25$

**BONUS** ▶  $75 = \text{▽} + 75$

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

? = \_\_\_\_\_

$\text{☾} =$  \_\_\_\_\_

$\text{▽} =$  \_\_\_\_\_



**BONUS** ▶ Use the same number instead of 😊. Can you find more than one solution to the equation  $\text{😊} + 0 = \text{😊}$ ? Explain.