

CHAPTER 1

NUMBER CONCEPTS

- 1.1 Multiples of Numbers and Skip Counting
- 1.2 Reading and Writing Numbers Using Place Value
- 1.3 Comparing and Ordering Numbers to 1000
- 1.4 Estimating Quantities Less Than 1000
- 1.5 Expanding and Rounding Numbers

If you need additional help, there are more resources available at www.dynamicmath.ca.

1.1 Multiples of Numbers and Skip Counting

Multiples of Numbers

When we add a number to itself, we end up with a multiple of that number. If we multiply a number by another whole number, we also end up with a multiple of the number.

Examples:

$$3 + \underline{3} = 6 \quad 6 \text{ is a multiple of } 3.$$

$$7 + \underline{7} = 14 \quad 14 \text{ is a multiple of } 7.$$

$$5 \times \underline{2} = 10, 5 \times \underline{3} = 15, 5 \times \underline{4} = 20 \quad 10, 15, \text{ and } 20 \text{ are all multiples of } 5.$$

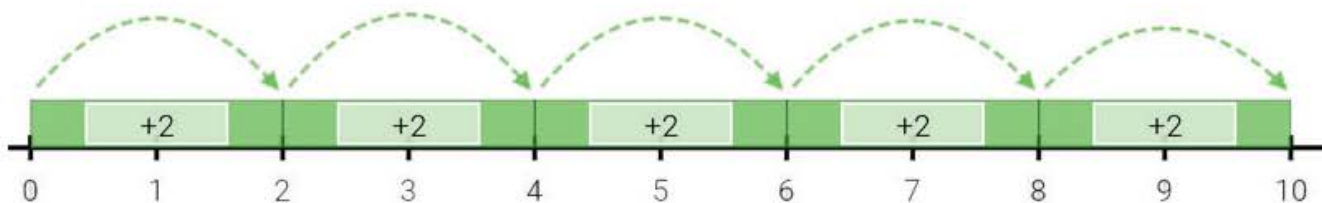
We can find multiples of numbers by skip counting forwards and backwards.

Skip Counting Forward

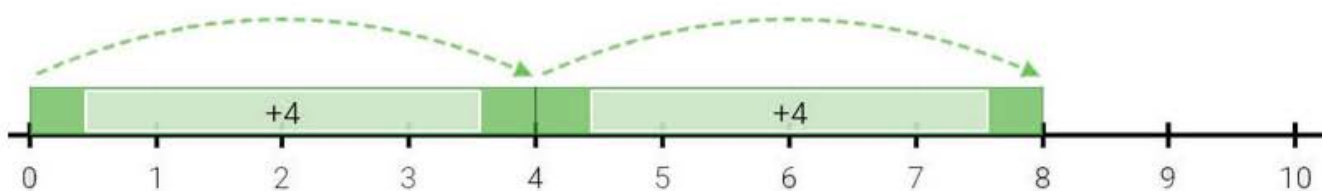
If we start with a number and then add the same number to it each time to produce the next one, we call it **skip counting forward**.

Examples:

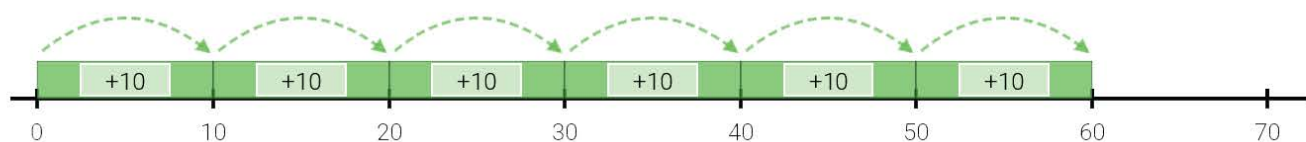
1. Skip Counting Forward by 2



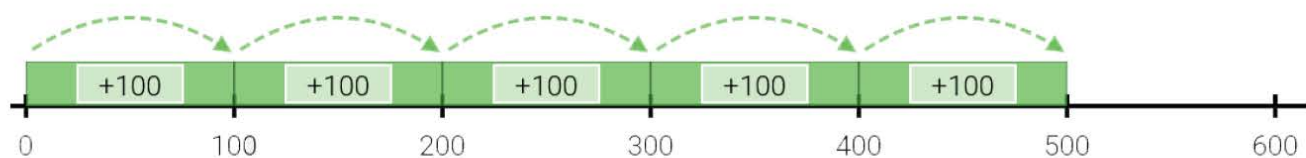
2. Skip Counting Forward by 4



3. Skip Counting Forward by 10's



4. Skip Counting Forward by 100's



5. Find the missing number.

3, 6, 9, 12, _____, 18, 21

This involves skip counting forward by 3.

For example, $3 + 3 = 6$, $6 + 3 = 9$, $9 + 3 = 12$, $18 + 3 = 21$.

The missing number is $12 + 3 = \mathbf{15}$.

6. Find the missing number.

10, 20, 30, 40, __, 60, 70

This involves skip counting forward by 10.

For example, $10 + 10 = 20$, $20 + 10 = 30$, $30 + 10 = 40$.

The missing number is $40 + 10 = \mathbf{50}$

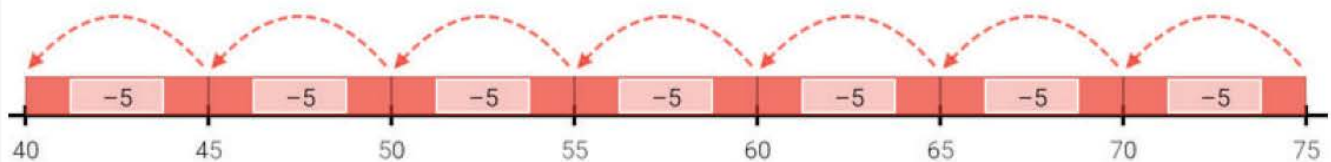
Note: Each time we produced multiples of the number we started with.

Skip Counting Backward

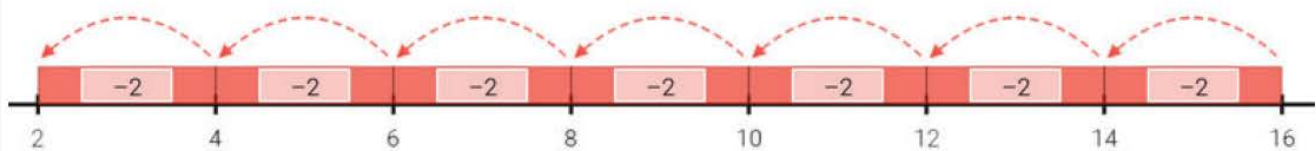
If we start with a number and subtract the same number from it each time, we call it **skip counting backward**.

Examples:

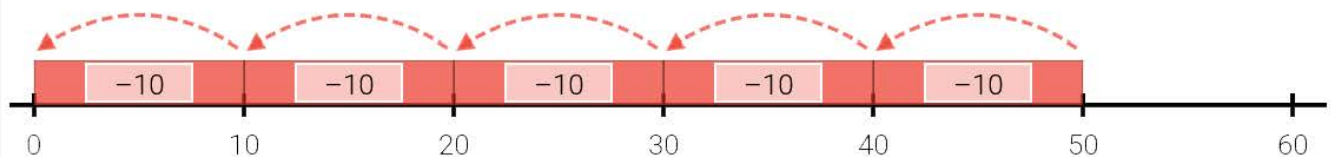
1. Skip Counting Backward by 5, starting at 75.



2. Skip Counting Backward by 2, starting at 16.



3. Skip Counting Backward by 10, starting at 50.



4. Find the missing number.

150, 125, 100, 75, _____, 25

This involves skip counting backwards by 25.

For example, $125 - 25 = 100$, $100 - 25 = 75$. The missing number is $75 - 25 = 50$.

5. Find the missing number.

900, 800, 700, 600 , ____

This involves skip counting backwards by 100

For example, $900 - 100 = 800$, $800 - 100 = 700$. The missing number is $600 - 100 = \mathbf{500}$.

Note: Each time we produced multiples of the number we started with.

Examples with Solutions

1. Start with 5 and then skip count forward by 2 until you have seven numbers altogether.

(i) Begin with 5.

(ii) Add two to 5 to get 7. $(5 + 2 = 7)$

(iii) Add two to 7 to get 9. $(7 + 2 = 9)$

(iv) Continue adding 2 until you have a total of seven numbers.

5, 7, 9, 11, 13, 15, 17

2. Start with 30 and then skip count backward by 5 until you reach zero.

(i) Begin with 30.

(ii) Subtract 5 from 30 to get 25.

(iii) Subtract 5 from 25 to get 20

(iv) Continue subtracting 5 until you end up at zero.

30, 25, 20, 15, 10, 5, 0

3. Fill in the blanks.

45, 50, __, __, 65, __, __, __

- (i) Examine the first two numbers. What can you do to the first to get the second?
- (ii) If you add 5 to the first number it will give you the second number.
- (iii) If you continue to add 5 to the next two numbers, you get 65 as the fifth number. This confirms that you should skip count forward by 5's to fill in the blanks as shown.

45, 50, **55**, **60**, 65, **70**, **75**, **80**

4. Fill in the blanks.

175, 150, __, 100, __, 50, 25

- (i) Examine the first two numbers. What can you do to the first to get the second?
- (ii) If you subtract 25 from the first number it will give you the second one.
- (iii) If you continue to subtract 25 the third number becomes 125 and the next becomes 100. This confirms that you should skip count backward by 25's to fill in the blanks as shown.

175, 150, **125**, 100, **75**, 50, 25

5. List all multiples of 3 between 9 and 27.

- (i) Both 9 and 27 are multiples of 3.
- (ii) Use skip counting forward by 3 to find all multiples between the two numbers.
- (iii) The solution is arrived at as follows: $9 + 3 = 12$, $12 + 3 = 15$, $15 + 3 = 18$,
 $18 + 3 = 21$, $21 + 3 = 24$, $24 + 3 = 27$
- (iv) Multiples of 3 between 9 and 27 are: **12, 15, 18, 21, and 24**

6. List all multiples of 10 between 90 and 40.
- (i) Both 90 and 40 are multiples of 10.
 - (ii) Use skip counting backward by 10 to find all multiples between the two numbers.
 - (iii) The solution is arrived at as follows:
 $90 - 10 = 80$, $80 - 10 = 70$, $70 - 10 = 60$, $60 - 10 = 50$, $50 - 10 = 40$
 - (iv) Multiples of 10 between 90 and 40 are: **80, 70, 60, and 50**
7. List all multiples of 5 between 12 and 32.
- (i) 12 is not a multiple of 5, so the lowest number greater than 12 that is a multiple of 5 is 15.
 - (ii) Use skip counting forward by 5 from 15.
 - (iii) The solution is arrived at as follows:
 $15 + 5 = 20$, $20 + 5 = 25$, $25 + 5 = 30$, $30 + 5 = 35$
This last number is greater than 32, so it is not part of the answer.
 - (iv) Multiples of 5 between 12 and 32 are: **15, 20, 25, and 30**
8. Find the missing values for the amounts of money shown in the following pattern.
125¢, 150¢, _____, 200¢, _____
- (i) The value between the first and second amounts has increased by 25¢
 - (ii) Use skip counting forward by 25¢ to find the missing values.
 - (iii) The solution is arrived at as follows:
 $125¢ + 25¢ = 150¢$
 $150¢ + 25¢ = 175¢$
 $175¢ + 25¢ = 200¢$
 $200¢ + 25¢ = 225¢$
 - (iv) The missing values are 175¢ and 225¢.

9. Find the missing numbers in the following pattern.

____, ____, 80, 90, 100, 110, ____

- (i) Examine the four numbers that are shown next to each other.
- (ii) If you add 10 to each of these numbers you get the next number. We have a pattern of multiples of 10.
- (iii) Skip count by 10 backwards from 80 to get the first two missing numbers and forward by 10 from 110 to get the last number.
- (iv) The first two numbers are 60 and 70 and the last number is 120.

10. One of the following numbers is not part of the pattern. Which one is it?

3, 6, 9, 13, 15

- (i) Examine the first two numbers. What can you do to the first to get the second?
- (ii) If you add 3 to the first number, it will give you the second one and if you add 3 to the second it will give you the third number.
- (iii) If you add 3 to the third number, you should get 12 instead of 13 and 12 plus 3 is 15.
- (iv) The number that is not part of the pattern is **13**.

Exercises 1.1

Skip count by 2. Fill in each blank in questions #1 to 4.

1.

26	28						40		
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2.

46		50						62	
----	--	----	--	--	--	--	--	----	--

3.

20	18	16				8			
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4.

	30	28	26				18		
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Skip count by 5. Fill in each blank in questions #5 to 7.

5.

35	40								
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6.

90	85		75						
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7.

75	70	65						35	
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Skip count by 10. Fill in each blank in questions #8 to 11.

8.

70			100	110					
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9.

	40	50			80				120
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10.

120	110					60			
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11.

	90	80		60			30		
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12. What is the skip counting pattern shown in the following numbers?

37, 40, 43, 46, 49, ...

13. What is the skip counting pattern shown in the following numbers?

112, 102, 92, 82, ...

14. Find all multiples of 5 between 30 and 55.

15. Find all multiples of 4 between 44 and 32.

16. Find the missing values in the pattern shown by the following amounts of money.

175¢, 180¢, _____, 190¢, _____

17. Find the missing values in the pattern shown by the following amounts of money.

130¢, 127¢, _____, 121¢, _____

18. Use skip counting to find the next three numbers in each pattern.

a. 6, 12, 18, _____, _____, _____

b. 100, 103, 106, _____, _____, _____

c. 80, 76, 72, 68, _____, _____, _____

d. 100, 95, 90, 85, _____, _____, _____

Extra for Experts

19. Fill in the blanks.

32			38	40					
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20. Fill in the blanks.

		55	50	45					
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21. Fill in the blanks.

		29	34	39					
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22. Fill in the blanks.

	6		12		18		24		30
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23. Use skip counting to find all multiples of 5 between 17 and 41.

24. Use skip counting to find all multiples of 25 between 260 and 180.

25. What amounts between \$85 and \$120 are multiples of 10?

26. If you begin at 75 and skip count by 25 until you get to 250, and then begin at 100 and skip count by 100 to 500, which numbers would be common to both sets of numbers?

27. If you begin at 10 and skip count by 5 until you get to 40, and then begin at 8 and skip count by 2 until you get to 32, which numbers would be common to both sets of numbers?
28. Begin at 70 and skip count backwards by 10 until you get to 25, then begin at 68 and skip count backwards by 2 until you get to 58. Which numbers are common to both sets of numbers?

ANSWERS TO EXERCISES AND CHAPTER TESTS

CHAPTER 1

Exercises 1.1 (page 8)

1.

26	28	30	32	34	36	38	40	42	44
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2.

46	48	50	52	54	56	58	60	62	64
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3.

20	18	16	14	12	10	8	6	4	2
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4.

32	30	28	26	24	22	20	18	16	14
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5.

35	40	45	50	55	60	65	70	75	80
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6.

90	85	80	75	70	65	60	55	50	45
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7.

75	70	65	60	55	50	45	40	35	30
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8.

70	80	90	100	110	120	130	140	150	160
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9.

30	40	50	60	70	80	90	100	110	120
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10.

120	110	100	90	80	70	60	50	40	30
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11.

100	90	80	70	60	50	40	30	20	10
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12. skip count forward by 3 13. skip count backward by 10 14. 35, 40, 45, 50

15. 40, 36 16. 185¢, 195¢ 17. 124¢, 118¢ 18. a) 24, 30, 36 b) 109, 112, 115 c) 64, 60, 56 d) 80, 75, 70

19.

32	34	36	38	40	42	44	46	48	50
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20.

65	60	55	50	45	40	35	30	25	20
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21.

19	24	29	34	39	44	49	54	59	64
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22.

3	6	9	12	15	18	21	24	27	30
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23. 20, 25, 30, 35, 40 24. 200, 225, 250

25. \$90, \$100, \$110 26. 100, 200

27. 10, 20, 30 28. 60

Exercises 1.2 (page 17)

1.

a) 9

b) 52

c) 206

d) 630

e) 510

f) 315

g) 12

hundreds	tens	ones
0	0	9
0	5	2
2	0	6
6	3	0
5	1	0
3	1	5
0	1	2

2. a) 775 b) 256 c) 805 d) 999

e) 703 f) 650 g) 50 h) 303 3. a) 812

b) 621 c) 807 d) 268 e) 801 f) 205

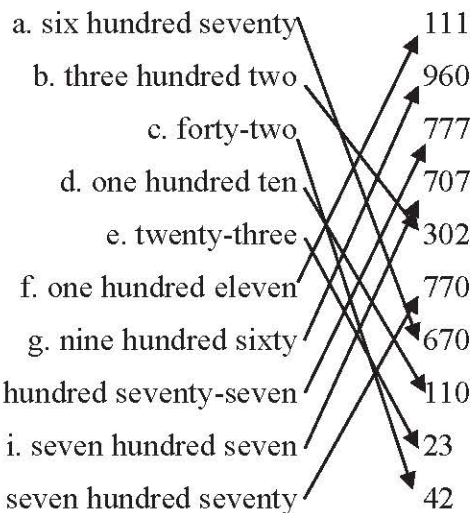
4. a) five hundred six b) seventy-seven

c) eight hundred thirty-five d) six hundred sixty

e) four hundred one

f) ninety-five

5.



6. a) 412 b) 609 c) 705 d) 402

e) 772 f) 501 g) 217 h) 400

7. a) five hundred twenty-eight

b) nine hundred fifty c) two hundred fifty d) four hundred twenty

8) 203

9. 390 10. 45 11. 117 12. 1234

13. 421 14. 8045 15. 5555