# Master 10.17) Extra Practice 1

#### Section 10.1: Number Patterns

- For each pattern:

   Describe the pattern.
   Write the next 3 terms.
   4, 7, 10, 13, 17, ...
  - b) 3, 6, 12, 24, ...
  - c) 8, 15, 24, 35, ...
  - d) 5, 9, 13, 17, ...
  - e) 4, 9, 14, 19, ...
  - f) 105, 103, 101, 99, ...

2. This pattern continues.





- a) Describe the pattern.
- b) Sketch the next 2 terms.
- c) How many squares are in the 10th term?
- d) How many squares are in the 15th term?
- 3. Create two different number patterns. Each pattern must contain the numbers 15 and 30. Describe each pattern in words. Write the next 4 terms in each pattern.
- 4. Create two different number patterns that contain the numbers 9, 12, and 18. Write the first 5 terms in each pattern.

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## **Extra Practice 2**

#### Section 10.2: Graphing Patterns

1. Copy and complete this table for each pattern.

Input	Output
1	
2	
3	
4	
5	

- a) Add 7 to each Input number.
- b) Multiply each Input number by 4, then subtract 1.
- c) Add 3 to each Input number, then multiply by 2.
- d) Subtract two times each Input number from 13.

#### 2. For each table:

- i) Describe the pattern in the Output column.
- ii) How can you find an Output number when you know an Input number?
- iii) Write the next three rows in each table.

a)	Input	Output	b)	Input	Output	c)	Input	Output
	3	15		4	7		10	6
	4	18		5	9		20	11
	5	21		6	11		30	16
	6	24		7	13		40	21
	7	27		8	15		50	26

- 3. The Grade 7 students sell boxes of granola bars to raise money for charity. The students charge \$3.25 per box.
  - a) A student sells 5, 10, 15, 20, and 25 boxes. Make a table for the money raised.
  - b) Graph the data in the table in *part a*.
  - c) Explain how the graph shows the pattern in the table.
- 4. Copy and complete the table for this pattern.
  - a) Divide each number by 3, then add 2.
  - b) Graph the pattern. Explain how the graph shows the pattern.

Input	Output
3	
6	
9	
12	
15	

## **Extra Practice 3**

Se	ction 10.3: Variables in Expressions			
1.	<ul><li>Write an algebraic expression for each statement</li><li>a) Eleven more than a number</li><li>b) Nineteen times a number</li><li>c) Twelve less than a number</li><li>d) A number divided by seventeen</li></ul>	nt.		
2.	Which algebraic expression can be used to desc Circle the correct answer.	eribe each phras	se?	
	a) A number decreased by 6	<i>n</i> – 6	6 – <i>n</i>	$\frac{n}{6}$
	b) One-half a number	$a + \frac{1}{2}$	$\frac{1}{2}-a$	$\frac{a}{2}$
	c) Double a number, then subtract 1.	2x - 1	1 - 2x	$x^2 - 1$
	d) Five less than four times a number	5 - 4n	4 <i>n</i> – 5	4(n-5)
	e) Twelve added to twice a number	2 <i>n</i> + 12	2(n + 12)	12 - 2n
3.	<ul> <li>Write an algebraic expression for each statement</li> <li>a) Twenty-five greater than a number</li> <li>b) One hundred divided by a number</li> <li>c) Eight times a number is subtracted from twe</li> <li>d) Three less than the square of a number</li> <li>e) Thirteen subtracted from the product of three</li> </ul>	nt. Use <i>n</i> as the nty-three times a numb	variable. er	

- f) A number increased by four, then multiplied by five
- 4. Write each algebraic expression in words.
  - a) 5*a*
  - b) 9*a* + 3
  - c) *a* 2
  - d)  $\frac{a}{3}$
  - e) 6(a-5)
- 5. Find the area of a triangle with each base and height.
  - a) base: 5 cm; height 6 cm
  - b) base: 9 cm; height: 4 cm
  - c) base: *b* centimetres; height: *h* centimetres
- A person earns \$5/h shovelling snow. Find the money earned for each time. 6. a) 4 h
  - b) 9 h c) *t* hours

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a)

## **Extra Practice 4**

#### Section 10.4: Evaluating Algebraic Expressions

- 1. Complete each table.
  - Explain how to get an Output number when you know an Input number.

Input	Output
п	7n + 1
0	
2	
4	
6	
8	

b)	Input	Output
	п	$2n^2$
	3	
	4	
	5	
	6	
	7	

Input n	Output $\frac{n}{5} + 4$
5	
10	
15	
20	
25	

c)

- 2. Evaluate each expression by replacing k with 5. a) k + 7 b) 6k c) 10 - 2k
  - d)  $\frac{50}{k} 1$  e)  $k^2$  f) 3(2k + 1)
- 3. Write an algebraic expression for each statement. Evaluate each expression by replacing *n* with 9.

Statement	Expression	Value
a) The sum of a number and sixteen		
b) Ten more than twice a number		
c) Nine divided by a number, then add four		
d) The product of eleven and a number		
e) A number divided by three, then add one		

4. A value of n is substituted for each expression to get the number in the box. Find each value of n.

a) 4 <i>n</i> −1	23
b) $\frac{n}{3} - 2$	2
c) $2(n+3)$	16
d) 27 + 2 <i>n</i>	33
e) $4(n-2)$	28
f) $26 - \frac{n}{2}$	21

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# Extra Practice 5

Se	Section 10.5: Reading and Writing Equations		
1.	Follow the steps to write each equat Let <i>n</i> represent the number. a) Think of a number:	ion.	
	Multiply the number by 4:		
	Add six:		
	The result is 62. What is the equation	ation?	
	b) Think of a number:		
	Divide it by 5:		
	Subtract 3:		
	The result is 9. What is the equat	ion?	
2.	Match each equation with the correct a) $n + 3 = 6$	ct sentence. A. A number divided by three equals six.	
	b) $3n = 6$	B. The sum of a number and three is six.	
	c) $\frac{n}{3} = 6$	C. The product of a number and three is six.	
	d) $3n + 3 = 6$	D. Three more than three times a number is six.	
3.	Write each equation in words. a) $2x - 3 = 11$		
	b) $4(x+2) = 20$		
	c) $\frac{x}{2} = 8$		
	d) $2x + 14 = 62$		
4.	Write an equation for each sentence a) Shawn's age 9 years from now w	vill be 23.	
	b) Six times the number of hot dogs sold is 552.		
	c) The perimeter of a regular hexagon with side length $s$ centimetres is 42 cm.		
	d) The cost of three boxes of popco each is \$16.	rn at \$3 each and two drinks at $x$ dollars	

## **Extra Practice 6**

1. Solve each equation.

a) $4 + x = 15$	b) $a + 7 = 21$
c) $5 + 3d = 23$	d) $6f + 2 = 26$

2. Solve each equation.

a) $t - 3 = 8$	b) $19 - 4n = 3$

- c) 5b 3 = 17 d) 18 2w = 4
- 3. Solve by inspection.

a) $3n = 21$	b) $\frac{33}{n} = 3$
c) $17 - 3v = 2$	d) $4c + 5 = 25$

4. Solve by systematic trial.

a) $\frac{156}{n} = 26$	b) 13 <i>d</i> + 17 = 121
c) $17z = 153$	d) $23h - 3 = 135$

- 5. The perimeter of a regular octagon is 88 cm.
  - a) Write an equation you can solve to find the side length of the octagon.
  - b) Solve the equation.
- 6. Write an equation you can solve to answer each problem. Solve each equation.
  - a) Ruby has 27 pages of stamps in her collection.Zachary has 8 fewer pages than Ruby.How many pages of stamps does Zachary have?
  - b) Nemo has 3 times as many DVDs as Ashley. Ashley has 16 DVDs. How many DVDs does Nemo have?
  - c) Adrian walked 19 km less than Sheba. Sheba walked 35 km. How far did Adrian walk?