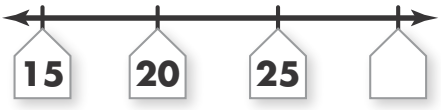
Name _____

Topic **14**
Assessment

1. Charlene and Luke play a game with scoring tags as shown below. They follow the rule "Add 5."



A. What number belongs on the front of the blank scoring tag? Explain.

2 points

30; Sample answer: Using the rule, 15 + 5 = 20, 20 + 5 = 25, and 25 + 5 = 30.

B. Describe two features of the pattern.

1 point

Sample answer: All of the tag numbers are multiples of 5. The tag numbers alternate between even and odd.

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2. There are 8 juice boxes in each package. Two packages contain 16 boxes. Match the number of packages to the number of boxes. The rule is "Multiply by 8." **1 point**

	48 boxes	32 boxes	120 boxes	160 boxes
4 packages	❒	■	❒	❒
20 packages	❒	❒	❒	■
6 packages	■	❒	❒	❒
15 packages	❒	❒	■	❒

3. Use the rule "Multiply by 4" to continue the pattern. Then describe a feature of the pattern. **2 points**

Number of Campfires	1	2	4	7
Number of Logs	4	8	16	**28**

Sample answer: The number of logs is always even.

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4. Use the rule "Multiply by 2" to continue the pattern. Then write 4 terms of a different pattern that follows the same rule. **2 points**

8, 16, 32, **64**, **128**

Sample answer: 3, 6, 12, 24

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5. Nadia arranges her stuffed animals by height. Each is 7 cm taller than the last. The first is 9 cm tall and the last is 65 cm tall. Her brother Ralph says that all of the stuffed animals have an odd number as their height. Is Ralph correct? Find the height of each stuffed animal to explain.

2 points

Ralph is not correct. Sample answer: The heights will be 9, 16, 23, 30, 37, 44, 51, 58, and 65. These are not all odd. The second stuffed animal will be 16 cm tall and 16 is even.

6. The rule for the repeating pattern is "2, 8, 2, 6, 3." Write the next three numbers in the pattern. Then tell what will be the 23rd number in the pattern. Explain. **3 points**

2, 8, 2, 6, 3, 2, 8, 2, **6**, **3**, **2**

2; Sample answer: There are 5 repeating numbers in the pattern; 23 ÷ 5 = 4 R3. The pattern will repeat 4 times. Then the third number in the pattern is the 23rd number.

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7. Samuel wrote different patterns for the rule "Add 7." Select all of the patterns that he could have written. Then write 4 terms of a different pattern that follows the same rule. **2 points**

- ☐ 1, 7, 14, 21, 28
- ☐ 70, 63, 56, 49, 42
- ■ 7, 14, 21, 28, 35
- ☐ 51, 44, 37, 30, 23
- ■ 3, 10, 17, 24, 31

Sample answer: 23, 30, 37, 44

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8. The rule is "Subtract 4." What are the next three numbers in the pattern? Describe two features of the pattern. **2 points**

48, 44, 40, 36, 32, 28, …

24, 20, 16; Sample answer: All the numbers are even. All the numbers are multiples of 4.

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9. The table shows the different numbers of bracelets formed by different numbers of links. The rule is "Divide by 9." **1 point**

Links	36	45	81	108
Bracelets	4	5	*b*	12

A. How many bracelets can be formed with 81 links?

9 bracelets

B. How many links are there in 15 bracelets? How do you know? **2 points**

135; The rule for finding the number of bracelets formed is "Divide by 9," so the rule for finding the number of links must be "Multiply by 9."

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10. A. Select all the true statements for the repeating pattern. The rule is "Oval, Star, Tree, Circle." **1 point**

- ☐ The next shape is an oval.
- ■ The tree is the 3rd, 7th, 11th, etc. shape.
- ☐ The 15th shape is the circle.
- ☐ The circle only repeats once.
- ■ The 10th shape is the star.

B. How many trees are there among the first 26 shapes? **1 point**

6 trees

