

Name _____

Date _____

Evaluate Expressions: Play Answer Sheet

Selected-Response Items—Indicate the letter(s) only.

- | | | |
|----------|----------|----------|
| 1. _____ | 2. _____ | 3. _____ |
| 4. _____ | 5. _____ | 6. _____ |
| 7. _____ | | |

Fill-in-the-Blank Items

- | | | | |
|--------------|--------------|---------------|---------------|
| 8. (a) _____ | 9. (a) _____ | 10. (a) _____ | 11. (a) _____ |
| (b) _____ | (b) _____ | (b) _____ | (b) _____ |
| (c) _____ | (c) _____ | (c) _____ | (c) _____ |
| (d) _____ | (d) _____ | | (d) _____ |
| | (e) _____ | | (e) _____ |
| 12. _____ | 13. _____ | 14. (a) _____ | 15. (a) _____ |
| | | (b) _____ | (b) _____ |

Evaluate Expressions: Play

Number of Questions: 15

Questions 1–7 are selected-response questions. Write the letters of the correct answers on the answer sheet.

1. Look at the expression $3x + 7$.

Which of the following statements about the above expression are true?

Select all that apply.

- A. When $x = 5$, the value of the expression is 22.
- B. When $x = 7$, the value of the expression is 28.
- C. When $x = 10$, the value of the expression is 37.
- D. When $x = 12$, the value of the expression is 41.

2. Consider the expression $23(k - 2)$.

Which of the following statements describe how the value of the variable affects the value of the expression? *Select all that apply.*

- A. The value of the expression decreases as the value of the variable decreases.
- B. The value of the expression decreases as the value of the variable increases.
- C. The value of the expression increases as the value of the variable decreases.
- D. The value of the expression increases as the value of the variable increases.

3. Consider the expression $3 + 10^2 - 9^2 + 3^2 + 7$.

Which of the following is the first step in finding the value of the expression?

- | | |
|------------------------|-----------------------|
| A. Simplify $3 + 10$. | B. Simplify 10^2 . |
| C. Simplify $10 - 9$. | D. Simplify $9 + 3$. |

4. Consider the expression $5 + 7 \cdot 3 - 2 \div 1$.

Which of the following is the first step in finding the value of the expression?

- | | |
|-----------------------|---------------------------|
| A. Simplify $5 + 7$. | B. Simplify $7 \cdot 3$. |
| C. Simplify $3 - 2$. | D. Simplify $2 \div 1$. |

5. Consider the expression $\frac{3}{m} + 2$.

Which of the following statements describe how the value of the variable affects the value of the expression? *Select all that apply.*

- A. The value of the expression decreases as the value of the variable decreases.
 - B. The value of the expression decreases as the value of the variable increases.
 - C. The value of the expression increases as the value of the variable decreases.
 - D. The value of the expression increases as the value of the variable increases.
6. Which of the following statements about the expression $\frac{5}{x} + 3$ are true?
- A. As x increases, the value of the expression increases.
 - B. As x decreases, the value of the expression decreases.
 - C. When $x = 1$, the value of the expression is 3.
 - D. When $x = 20$, the value of the expression is $3\frac{1}{4}$.
7. Which of the following shows the correct simplification of $16 - (4 \cdot 2) + 1$?
- | | | | |
|---------------------------|---------------------------|---------------------------|---------------------------|
| A. $16 - (4 \cdot 2) + 1$ | B. $16 - (4 \cdot 2) + 1$ | C. $16 - (4 \cdot 2) + 1$ | D. $16 - (4 \cdot 2) + 1$ |
| $16 - 8 + 1$ | $(16 - 4) \cdot 2 + 1$ | $16 - 8 + 1$ | $16 - 4 \cdot 2 + 1$ |
| $8 + 1$ | $12 \cdot 2 + 1$ | $16 - 9$ | $16 - 4 \cdot 3$ |
| 9 | $24 + 1$ | 7 | $16 - 12$ |
| | 25 | | 4 |

Questions 8–15 are fill-in-the-blank questions. Write the correct answers in the spaces provided on the answer sheet.

8. For each of the expressions below, indicate which step would be first in the simplification process. *Each expression can only be used once.*

- | | | |
|-------------------------|--------------------------|--------------------|
| A. $13 \cdot 3^2 - 7$ | B. $18 \cdot 3 + 21 - 3$ | C. $(3 + 1) - 4^2$ |
| D. $8 - 2 \cdot 4 + 10$ | E. $18 - 29 + 34$ | |

Parentheses: (a) _____

Multiplication/division: (b) _____

Exponents: (c) _____

Addition/subtraction: (d) _____

9. The steps for simplifying the expression $9^2 - 7 + 3(4 + 10)$ are shown below in random order. Follow the order of operations to place the steps in the correct order.

You will not use all of the answer choices.

- | | | |
|------------------------|------------------------|--------------------------|
| A. Multiply 3 by 14. | B. Simplify 9^2 . | C. Add $7 + 3$. |
| D. Simply $(4 + 10)$. | E. Subtract 7 from 81. | F. Add 3 to 74. |
| G. Multiply 10 by 14. | H. Add 74 to 42. | I. Subtract 140 from 81. |

Step 1: (a)_____

Step 2: (b)_____

Step 3: (c)_____

Step 4: (d)_____

Step 5: (e)_____

10. Using what you know about the order of operations, complete the statements below for the expression $2 \cdot 3^2$. *The answer choices are below each sentence.*

The first thing that should be evaluated is the (a)_____. After doing that, I will then evaluate the (b)_____.

- | | |
|-------------------|--------------|
| A. multiplication | B. exponents |
|-------------------|--------------|

The value of the expression is (c)_____.

- | | |
|-------|-------|
| C. 18 | D. 36 |
|-------|-------|

11. Using what you know about the order of operations, select the term or phrase that correctly complete each statement. *The answer choices are below each set of statements.*

According to the order of operations, the first part of the expression to be evaluated is the (a)_____.

Next, you would evaluate any (b)_____.

After, you would evaluate (c)_____.

Lastly, evaluate any (d)_____.

- | | |
|----------------|----------------------------|
| A. parentheses | B. addition/subtraction |
| C. exponents | D. multiplication/division |

It is important to remember when evaluating multiplication/division, you should evaluate from (e)_____.

- | | |
|------------------|------------------|
| E. right to left | F. left to right |
|------------------|------------------|

12. Order the expressions from least to greatest based on the value of the expression when $x = 2$ and $y = 3$.

From least to greatest: _____

A. $x^3 + y^2$ B. $2x^4$ C. $2y^2$ D. $3(x + y)$

13. Order the expressions from least to greatest based on the value of the expression when $x = 8$.

From least to greatest: _____

A. $x \div 2 \cdot 4$ B. $20 - x + 4$ C. $3x - x + x \div 1$ D. $80 - x + x^2$

14. Write the value for each expression when $n = 2$.

$2(6n) + 13$: (a) _____

$2(4n) + 4n - 20 + 33$: (b) _____

15. Classify the following expressions as increasing or decreasing in value as the value of x increases. *Use only positive values of x for this problem.*

A. $3x$ B. $x - 1$ C. $\frac{x+1}{2x}$ D. $\frac{1}{4}x$ E. $\frac{1}{x}$

Increases value: (a) _____

Decreases value: (b) _____