

Evaluating and Manipulating Expressions
MCAS Worksheet 1

Name _____

- 1** What is the value of the expression below?

Mark your answer here: 1. Ⓐ Ⓑ Ⓒ Ⓓ

$$3(4^2 - 2)$$

- A. 18
- B. 22
- C. 42
- D. 46

- 2** Which of the following is equivalent to the expression below?

Mark your answer here: 2. Ⓐ Ⓑ Ⓒ Ⓓ

$$(3x + 6y) + (2x - y)$$

- A. $5x - y$
- B. $5x + 7y$
- C. $6x - 6y$
- D. $5x + 5y$



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- 3** What is the value of the expression below?

$$5(2^5 - 2)$$

- A. 40
- B. 80
- C. 150
- D. 170

Mark your answer here: 3. A B C D

- 4** The formula, $d = \sqrt{2A}$ gives the length of the diagonal of a square television screen in terms of A , its area.

What is the length of the diagonal of a square television screen that has an area of 72 square inches?

- A. 6 inches
- B. 8 inches
- C. 12 inches
- D. 17 inches

Mark your answer here: 4. A B C D



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- 5** Which of the following is equivalent to the expression below?

$$(5x + 6y - 3z) + (3x - 8y + z)$$

- A. $8x - 14y - 4z$
- B. $8x - 2y - 2z$
- C. $8x - 14y - 2z$
- D. $8x - 2y - 3z$

Mark your answer here: 5. A B C D

- 6** Which of the following is equivalent to the expression below?

$$(7a^2 + 5a + 3) + (-3a^2 + 2a - 4)$$

- A. $4a^2 + 7a - 1$
- B. $4a^2 + 7a + 1$
- C. $-4a^2 + 7a - 1$
- D. $-4a^2 + 7a + 1$

Mark your answer here: 6. A B C D



Directions: For the problem below, use a separate piece of paper to write your answers. Your teacher will not count anything you write on this page.

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Barry found the mistakes shown below when he checked his younger brother Rick's mathematics homework.

Rick's Homework Mistakes
Mistake A: $(x + y)^2 = x^2 + y^2$
Mistake B: $\frac{7w + z}{w} = 7 + z$
Mistake C: $n^2 + n + 1 = (n + 1)(n + 1)$

Barry explained that it would be possible to choose values for the variables, substitute them into Rick's equations, and show that the equations are **not** true.

- Barry asked his brother to let $x = 3$ and $y = 4$ and evaluate both sides of the equation in Mistake A.
 - What is the value of $(x + y)^2$ when $x = 3$ and $y = 4$? Show your work.
 - What is the value of $x^2 + y^2$ when $x = 3$ and $y = 4$? Show your work.
 - Use your calculations to explain Rick's mistake.
- In Mistake B, Rick divided incorrectly. Choose a value for w and a value for z and use them to show that $\frac{7w + z}{w}$ is **not** equal to $7 + z$. Show your work.
- In Mistake C, Rick factored incorrectly.
 - Choose a positive value for n and use it to show that $n^2 + n + 1$ is **not** equal to $(n + 1)(n + 1)$. Show your work.
 - Choose a negative value for n and use it to show that $n^2 + n + 1$ is **not** equal to $(n + 1)(n + 1)$. Show your work.

