

## Math Applications Semester Exam – Study Guide 2018-2019

For questions 1-40, please circle the answer for each question. Show your work if possible to receive partial credit. Each multiple-choice question is worth 2 points.

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1. Write the following expression in exponential form:  $5 \cdot 5 \cdot 5 \cdot 5 \cdot 5 \cdot 5 \cdot 5 \cdot 5$

2. Write the following expression in exponential form:  $-(8 \cdot 8 \cdot 8 \cdot 8 \cdot 8 \cdot 8 \cdot 8 \cdot 8)$

3. Write the following expression in exponential form:  $(-4) \cdot (-4) \cdot (-4)$

4. Find the value of the following expression:  $(-14)^4$

5. Find the value of the following expression:  $9^5$

6. Find the value of the following expression:  $-3^6$

**7. Evaluate the following expression:  $7 + 36 \div 6 \cdot 4$**

**8. Evaluate the following expression:  $3^4 + 30 \div (6 - 3)$**

**9. Evaluate the following expression:  $3 \cdot 5^4 + 27 - 8$**

**10. Which operation should you perform first when you evaluate  $12 - (7 + 32 \cdot 22) \div 4$**

**11. Find the product to the following problem:  $2.75 \cdot 6.4$**

**12. Find the quotient to the following problem:  $2.303 \div 0.7$**

**13. List the following numbers from least to greatest: 6, 38, -27, 0, -12**

**14. Find the sum to the following problem:  $|32| + |-12|$**

**15. Find the difference to the following problem:  $|38 - 42|$**

**16. Find the difference to the following problem:  $h - (-12)$  for  $h = -7$**

**17. Find the quotient to the following problem:  $\frac{35}{-5}$**

**18. Find the product to the following problem:  $-12(-4)$**

**19. Find the sum to the following problem:  $-12 + (-3)$**

20. Find the quotient to the following problem:  $r \div 4$  for  $r = -16$

21. Simplify the following problem:  $-8(3 + 5)$

22. Simplify the following problem:  $4(-5 + 2)$

23. Simplify the following problem:  $-3(-4 - 5)$

24. Multiply. Write the product as one power:  $8^4 \cdot 8^2$

25. Simplify:  $(y^2)^{-7}$

26. Divide. Write the quotient as one power:  $\frac{3^{10}}{3^4}$

27. Multiply. Write the product as one power:  $d^3 \cdot d^2$

**28. Write the following number in standard notation:  $3.732 \times 10^6$**

**29. Write the following number in standard notation:  $6.7842 \times 10^{-7}$**

**30. Write the following number in scientific notation: 83,200,000,000**

**31. Write the following number in scientific notation: 0.0000534**

**32. Recycling just 1 ton of paper saves 17 trees! If a city recycled enough paper to save 221 trees, how many tons of paper did it recycle?**

**33. Nala has \$43.82 in the bank and \$24.14 in her purse. She wants to purchase a necklace that costs \$83.72. How much more money does she need?**

**34. Four lion cubs weigh 5.46 pounds, 6.12 pounds, 11.3 pounds, and 7.26 pounds. What is the total weight of the lion cubs?**

35. Pluto is about 3,670,000,000 miles from the sun. Write this number in scientific notation.

36. The term absolute value means:

37. The word sum means:

38. The word inverse means:

39. The word integers means:

40. The word product means:

For Constructed Response Questions 1-5, use the information provided to solve each problem. Make sure to show **ALL** your work in order to receive partial credit.

**CR1. List the order of operations:**

**CR2. Mrs. Strong went to her favorite bead store. She bought a string of pearls for \$6.46, some purple beads for \$8.45, some blue beads for \$2.16, and some thread for \$0.63. She went to the store with \$20 in her pocket. How much change should Mrs. Strong get after buying all these items?**

Amount of change: \_\_\_\_\_

**CR3. Nala, Mufasa, Pumbaa, and Timon all go to dinner together. The total for the bill was \$133.64. They all agree to pay for the bill equally. How much did each person spend?**

Total each person spent: \_\_\_\_\_

**CR4. Using the table, list the following items from least to greatest:**

<b>Object</b>	<b>Size (in meters)</b>
Flu virus	$1.3 \times 10^{-7}$
Grain of sand	$2.4 \times 10^{-3}$
Red blood cell	$8.0 \times 10^{-6}$
Skin cell	$3.3 \times 10^{-5}$
White blood cell	$1.1 \times 10^{-5}$

Least:

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Greatest:

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**CR5. The running back for the Dallas Cowboys carries the ball twice in the first quarter. The first run he lost 14 yards and the second run he gained 6 yards. How many yards did the 2 runs total?**

Amount of yards: \_\_\_\_\_