



STUDENT \_\_\_\_\_

GROUP \_\_\_\_\_

INSTRUCTOR \_\_\_\_\_

DATE \_\_\_\_\_

## Homework #8: Cumulative Review

For **full credit**, show all of your work and explain your reasoning!  
Each Question is worth **2 POINTS**, unless otherwise indicated.

SCORE:

/60

1. **MEMORIZE YOUR MULTIPLICATION TABLES UP TO  $12 \times 12$ .**
2. Which expression is **not equivalent** to  $4 - 6$ ?

- A)  $4 + (-6)$
  - B)  $-1(6 + 4)$
  - C)  $-1(6 - 4)$
  - D)  $-6 + 4$
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3. Write the number **472** using our base-10 system.
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4. a) What is a natural number? An integer? A rational number?



HOMEWORK

b) What is the relationship between natural numbers, integers, and rational numbers? For example: if a number is an integer, does it have to also be a rational number? Does it have to also be a rational number?

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5. Which equality shows that the integers are **not closed** under division?

A)  $12 \div 4 = 3$

B)  $-12 \div 4 = -3$

C)  $4 \div 12 = \frac{1}{3}$

D)  $-\frac{2}{3} \div \frac{1}{3} = -2$



6. All even numbers can be written **in the form**  $2A$ , where  $A$  is an integer. All odd numbers can be written **in the form**  $2B + 1$ , where  $B$  is an integer.

Draw lines to match the expressions with their appropriate descriptions. You will match more than one equation with the same description. The first one is done for you. (Assume that  $x$  is an integer)

<u>Expression</u>	<u>Description</u>
$2(x + 4) + 1$	Odd
$2x$	
$3x$	
$4x$	Even
$2x + 2$	
$2x - 3$	Can't tell
$2(2x + 1) + 1$	

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7. Create a mathematical argument to show that if you add three consecutive odd integers, the result will be odd.



**HOMEWORK**

8. Use the distributive property to simplify the following expressions:

a)  $-6(-3 + 4)$

b)  $-1(x - 2)$

\*c)  $-p(q - r) + q(p - r) - r(p - q)$

**\*Hint: take it one step at a time!**

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9. a) Write a statement (an equation) that is always true. How do you know it's always true?

b) Write a statement (an equation) that is sometimes true. How do you know it's sometimes true?

c) Write a statement (an equation) that is never true. How do you know it's never true?



11. The statement  $1 - x = x - 1$  is

- A) Always true
- B) Sometimes true
- C) Never true
- D) Not enough information given

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12. The statement  $-2(a + b) = -2a + b$  is

- A) Always true
- B) Sometimes true
- C) Never true
- D) Not enough information given

**Hint: just because an equation is not always true does not mean that it is never true! Hmm....**

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13. The number of inches of water in a bucket during a steady rain shower is given by the expression  $\frac{4}{5}t + \frac{2}{5}$ , where  $t$  is the number of hours since the shower started.

If there are 6 inches of rain in the bucket, how long has it been raining for?



HOMWORK

14. In the past two and a half years, Gnarly the dog lost an average of  $\frac{1}{6}$  pound each month. Today, Gnarly weighs 18 pounds.

How much did Gnarly weigh a year and a half ago?

- A) 13 pounds
- B) 23 pounds
- C) 21 pounds
- D) It's not polite to talk about weight.



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15. Amineta is practicing factoring expressions. Her work is shown below. Which factorization is **not correct**?

- A)  $8x - 56 = 8(x - 7)$
  - B)  $8x + 56 = 8(x + 7)$
  - C)  $56 - 8x = -8(x - 7)$
  - D)  $56 - 8x = -8(7 - x)$
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16. A cake recipe used  $\frac{5}{2}$  cups of sugar. A baker makes three cakes. Each cake is divided into 10 pieces. How much sugar is in each piece?

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17. When you divide a number by a fraction between 0 and 1, the resulting number is larger.

For example,  $10 \div \frac{1}{3} = 30$ .

**Why does this happen?** Draw a picture to help you explain.

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18. Which of the following expressions is **not equivalent** to the others?

A)  $\frac{(-6)(4)}{-7}$

B)  $4 \div \frac{7}{6}$

C)  $\frac{\left(\frac{-4}{7}\right)}{-6}$

D)  $-4\left(\frac{-6}{7}\right)$



HOMWORK

19. Let  $P = 8k - 1$  and  $Q = -26 + 3k$ . If  $P = Q$ , then what is the value of  $k$ ?

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20. Jamie has a ribbon that is  $\frac{5}{6}$  of a yard long. If she cuts the ribbon into equal pieces each measuring  $\frac{1}{18}$  of a yard long, then how many pieces will she have?

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21. a) What is one-third of  $\frac{3}{4}$ ?

b) You've already eaten one-fourth of a bowl of ice cream. When you leave the room, Gnarly the dog eats two-thirds of what was left. After this, what fraction of the original ice cream is left in the bowl?

A)  $\frac{1}{6}$

B)  $\frac{1}{4}$

C)  $\frac{1}{2}$

D) No ice cream is left. Bad dog.







22. Create three different fractions **that are between 0 and 1** using the numbers 2,3 and 5. Order these fractions from least to greatest.

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23. Circle the expression below that is **not equivalent** to the fraction  $\frac{5}{9}$ ?

$$\frac{\left(\frac{5}{x}\right)}{\left(\frac{9}{x}\right)}$$

$$\frac{5+x}{9+x}$$

$$\frac{5x}{9x}$$

$$\frac{1}{\left(\frac{9}{5}\right)}$$

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24. A quality control manager at a factory selects 8 lightbulbs at random for inspection out of every 250 lightbulbs produced. At this rate, how many lightbulbs will be inspected if the factory produces 750 lightbulbs?

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25. If  $\frac{a}{b} = 4$  then what is the value of  $\frac{b}{a}$ ?
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HOMWORK

26. a) What is  $\frac{3}{5}$  of 200 ?

b) What is  $\frac{3}{5}$  of 25 ?

c) What is  $\frac{3}{5}$  of 225 ? **Hint: use your response to a) and b)**

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27. If  $\frac{2}{7}w = \frac{3}{14}$ , what is the value of  $w$  ?

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28. If  $\frac{5}{6}x - \frac{1}{3}x = \frac{3}{4} + \frac{9}{4}$ , what is the value of  $x$  ?



29. Nate walks 25 meters in 29.7 seconds. If he walks at this same rate, which of the following is closest to the distance he will walk in 7 minutes? (60 seconds = 1 minute)

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30. While walking in Prospect Park one day, you notice that you cast a 3-foot long shadow on the ground. You are 5 feet tall. As you walk past a tree, you measure that its shadow is 15 feet long. How tall is the tree?