

Show all your work! Partial credit is based on work shown!

9pts

1. **Without actually dividing**, use the divisibility tests to determine if 7051 is divisible by each of the following numbers.

a. Does $9 \mid 7051$? _____ Show the **divisibility test for 9**:

b. Does $11 \mid 7051$? _____ Show the **divisibility test for 11**:

c. Does $7 \mid 7051$? _____ Show the **divisibility test for 7**:

3pts

2. Complete this four digit number so that it is divisible by 6. **Explain the divisibility test for 6.**

8 5 2 ____

5pts

3. How could you create a test for divisibility by 12? Write out your test and give an example of a four-digit number and show that your test works.

8pts

4. a. The **prime factorization** of 84 is _____.

b. The **prime factorization** of 231 is _____.

c. The **greatest common factor** of 84 and 231 is _____.

d. The **least common multiple** of 84 and 231 is _____.

4pts.

5. Show all your steps in the following subtraction problem and simplify your answer.

$$\frac{17}{231} - \frac{1}{84} =$$

5pts

6. a. Which fraction is **larger** $\frac{7}{11}$ or $\frac{5}{8}$? _____ Explain using one of the methods we discussed in class.

b. Find one **fraction between** the fractions $\frac{7}{11}$ or $\frac{5}{8}$. Show your work..

6pts

7. Write each decimal as a fraction:

a. 0.538

b. 0.538538538...

c. 0.427272727...

6pts

8. Without dividing to change the following fractions to decimals, explain how to determine whether each fraction will be a terminating decimal.

a. $\frac{15}{60}$

b. $\frac{5}{60}$

4pts

9. Show your steps to illustrate an easy way to divide these numbers; write answer in scientific notation.

$$\left(\frac{5.4 \times 10^{12}}{9.0 \times 10^7} \right)$$

3pts

10. Give a number example to illustrate each of the following properties:

a. Associative _____

b. Commutative _____

c. Distributive _____

4pts

11. Illustrate that $2 \times 4 = 8$, using the following:

a. **number line**

b. **set model**

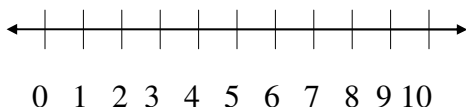


4pts

12. Illustrate that $9 - 3 = 6$, using:

a. **number line**

b. **set model**



6pts

13. Fill in the blanks using the **definition of division**, writing each division equation as a multiplication equation. (If there is no answer, say “undefined” and show why.)

a. $21 \div 7 = \underline{\hspace{1cm}}$ because $\underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$

b. $0 \div 7 = \underline{\hspace{1cm}}$ because $\underline{\hspace{1cm}}$

c. $0 \div 0 = \underline{\hspace{1cm}}$ because $\underline{\hspace{1cm}}$

2pts

14. Fill in the blank using the **definition of less than**: $5 < 16$ because $\underline{\hspace{1cm}}$.

6pts

15. Write out the steps to show how you would **mentally calculate** each of the following:
Give the exact answer, not an estimate and do not use standard paper and pencil methods.

a. 99×28

b. $(20)(6.25)$

6pts

16. a. **Estimate** using compatible numbers.

b. **Estimate** the following using front-end with adjustment.

$178 \div 23$

$3\frac{4}{7} + 6\frac{9}{15}$

8pts

17. A school fund-raising project has collected \$ 1700, which is 68% of its goal. What is the amount of the goal for this project? $\underline{\hspace{1cm}}$ Solve using a proportion or a simple algebraic equation, showing your work.

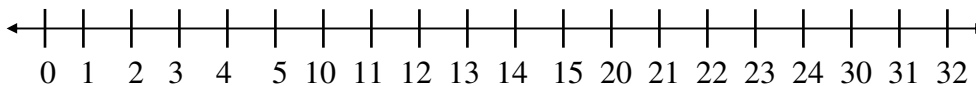
b. Illustrate this problem by putting appropriate numbers on this diagram.



11pts

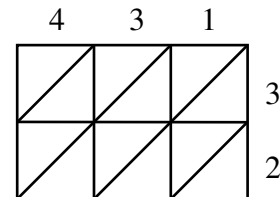
18. Do each of these problems in **base six arithmetic**:

(Use this number line to determine the necessary number facts.)



a. Subtract $\begin{array}{r} 412 \\ - 143 \\ \hline \end{array}$

b. Multiply: 431×32 in **base six** using lattice multiplication.



$\underline{\hspace{1cm}}$
39