

There are 13 problems on this exam. Show work and explain in order to receive full credit. Only those problems that say “explain” require explanations. Answers that require explanations will be given at most half credit without the required explanation. Be sure to follow all directions.

1. Use VLF to find the prime factorization of 5940 and 44000.
2. Use your answer to problem 1 to determine  $\text{GCF}(5940, 44000)$ . Explain.
3. Use your answer to problem 1 to determine  $\text{LCM}(5940, 44000)$ . Explain.
4. Check your answer to problem 3 by using the formula to calculate  $\text{LCM}(5940, 44000)$ . Show your work.

5. Use the Euclidean algorithm to find  $\text{GCF}(5940, 44000)$ .

6. Write  $\frac{44000}{5940}$  in simplest form.

7. Write  $\frac{44000}{5940}$  as a mixed number with the fractional part in simplest form. Explain.

**8. For each of the following problems indicate what whole could be used if you model the problem using pattern blocks. DO NOT DRAW THE MODEL.**

(a)  $\frac{7}{3} + \frac{5}{2}$

(b)  $2\frac{1}{3} + \frac{7}{5}$

(c)  $2\frac{1}{3} + 1\frac{3}{4}$

**9. Use pattern blocks to model the solution of one of the addition problems in problem 8. Identify your whole and draw your model on pattern block grid paper.**

**10. Use patterns to explain the calculation  $-6 \times 3$ . Assume all you know how to multiply are whole numbers. Start your pattern with four calculations you know.**

**11. Use an appropriate model to solve each of the following integer problems. Briefly explain. For your counters indicate which color is negative and which is positive.**

**(a)  $3 \times (-5)$**

**(b)  $3 - (-6)$**

**(c)  $-6 + 2$**

**(d)  $-15 \div -3$**

**(e)  $-12 \div 3$**

12. Use fraction bars to model the sum  $1\frac{3}{4} + 1\frac{5}{8}$ . Briefly explain in the margin.


13. Use the addition algorithm to check your answer to problem 12. Show all necessary steps.