1. Express each of the following fractions in simplest form.
   (a) $\dfrac{30}{315}$
   (b) $\dfrac{98}{-63}$
   (c) $\dfrac{627}{704}$
   (d) $\dfrac{-1230}{-3888}$
   (e) $\dfrac{126}{96}$
   (f) $\dfrac{35^{10}}{21^{11}}$
   (g) $\dfrac{101101}{539}$
2. Write all of the following fractions with a common denominator.
   $$\frac{-2}{7}, \quad \frac{-6}{20}, \quad \frac{3}{5}, \quad \frac{-4}{15}, \quad \frac{23}{35}, \quad \frac{2}{3}, \quad \frac{13}{21}, \quad \frac{100}{140}.$$
3. Is there such a thing as the smallest positive rational number? If so, what is it? If not, why can't there be one?
4. Draw an area model to illustrate that
   $$\frac{3}{5} \cdot \frac{3}{4} = \frac{9}{20}.$$
5. Solve for x in each of the following.
   (a) $\dfrac{90}{x} = \dfrac{18}{17}$
   (b) $\dfrac{x}{35} = \dfrac{-12}{7}$
6. Paris HIlton got 7 out of 16 answers correct on her driver's license exam, and Justin Timberlake got 42 out of 99 answers correct on his Elementary Teacher Licensure Exam. Who did better?
7. Express each of the following as improper fractions.
   (a) $9\dfrac{5}{8}$
   (b) $-7\dfrac{3}{4}$
8. Express each of the following as mixed numbers.
   (a) $\dfrac{395}{18}$
   (b) $\dfrac{-336}{4}$
9. Perform the following additions and subtractions (express all answers as fractions in reduced form).
   (a) $\dfrac{9}{10} + \dfrac{14}{15}$
   (b) $\dfrac{34}{35} - \dfrac{13}{14}$
   (c) $\dfrac{-31}{7} + \dfrac{-24}{5}$
   (d) $\dfrac{-24}{17} - \dfrac{-4}{7}$
10. Perform the following additions and subtractions (express all answers as mixed numbers).
    (a) $3\dfrac{1}{3} - 1\dfrac{2}{3}$
    (b) $21\dfrac{3}{8} - 13\dfrac{1}{4}$
    (c) $-3\dfrac{1}{7} + 4\dfrac{4}{5}$
    (d) $15\dfrac{1}{3} - 7\dfrac{5}{6} - 2\dfrac{1}{5}$

11. Approximate each of the following fractions by 0, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, or 1. State whether your estimate is high or low. Explain.
    (a) $\frac{11}{43}$
    (b) $\frac{3}{4333}$
    (c) $\frac{34}{67}$
    (d) $\frac{35}{67}$

12. By estimating, determine whether the given sum is closer to 0, $\frac{1}{2}$, or 1.
    (a) $-\frac{1}{2}-\frac{46}{95}+\frac{133}{70}-\frac{4}{7}$
    (b) $\frac{1}{200}-\frac{1}{95}-\frac{1}{70}+\frac{4}{7}$
    (c) $\frac{77}{150}-\frac{90}{95}-\frac{9}{71}+\frac{15}{7}$

13. Multiply or divide and express the answer in reduced form.
    (a) $\frac{9}{10}\cdot\frac{14}{15}$
    (b) $\frac{34}{35}\div\frac{13}{14}$
    (c) $\frac{-31}{7}\cdot\frac{-24}{5}$
    (d) $\frac{-14}{17}\div\frac{-4}{7}$

14. Multiply or divide and express the answer as a mixed number.
    (a) $3\frac{1}{3}\div 1\frac{2}{3}$
    (b) $21\frac{3}{8}\div 13\frac{1}{4}$
    (c) $-3\frac{1}{7}\cdot 4\frac{4}{5}$
    (d) $15\frac{1}{3}\div 7\frac{5}{6}\cdot 2\frac{1}{5}$

15. $\frac{1}{250}$ of all mathematicians in the U.S. are fed up with ridiculous nonsense. If 400 mathematicians are fed up with ridiculous nonsense, how many mathematicians are there in the U.S.?

16. Each Mariah Carey CD sells $\frac{1}{3}$ as many copies as the previous one. If her 15th CD sells 12 copies, how many copies did her 8th sell?

17. Martha bought 1232 shares of Enron stock at $17\frac{1}{4}$ a share and sold them at $224\frac{1}{8}$ a share. What was her profit on these stocks?

18. List the numbers in increasing order.
    (a) 1.333334, 1.33344, 1.34, 1.34443, 1.4, 1.3
    (b) –12.123, –12.1229, –12, –12.13, –12.1, –12.2

19. Determine whether each of the given fractions can be written as a terminating decimal. If it can, write is as one; if it can't, explain how you know.
    (a) $\frac{3}{17}$
    (b) $\frac{3}{64}$
    (c) $\frac{3}{24}$
    (d) $\frac{9}{625}$
    (e) $\frac{49}{42}$

20. Write each of the following numbers in scientific notation.
    (a) 320,000,000,000
    (b) $\frac{647}{100000}$
    (c) 0.00000000003445
    (d) 51
    (e) 320,000,000,001

21. Use long division to perform by hand each of the following calculations.
    (a) $7.29 \div 3$
    (b) $818.18 \div 1.1$
    (c) $0.3703 \div 23$
    (d) $1.500002 \div 0.7$
    (e) $0.023 \div 4.6$

22. List the following numbers in increasing order.
    (a) 2.63, 2.64, 2.635, 2.637, $2.\overline{63}$, $2.63\overline{6}$, $2.\overline{636}$, $2.\overline{63663}$
    (b) $0.\overline{1}$, $0.\overline{11}$, $0.1\overline{1}$, $0.\overline{111}$, $0.1\overline{11}$, $0.11\overline{1}$, $0.\overline{1111}$.

23. Find a decimal number between:
    (a) $1.01\overline{6}$ and 1.017
    (b) $1.01\overline{7}$ and 1.018
    (c) $1.01\overline{8}$ and 1.019
    (d) $1.01\overline{9}$ and 1.020

24. Express each of the following repeating decimals as a fraction.
    (a) $23.\overline{4}$
    (b) $2.\overline{34}$
    (c) $0.\overline{234}$
    (d) $0.23\overline{4}$
    (e) $0.2\overline{34}$

25. Express each of the following fractions as a repeating decimal (do the long division by hand).
    (a) $\frac{4}{7}$
    (b) $\frac{13}{24}$
    (c) $\frac{15}{11}$
    (d) $\frac{17}{27}$

26. Find
    (a) $0.\overline{334} + 0.\overline{21}$
    (b) $0.\overline{87} + 0.\overline{233}$

27. Pop Tarts are on sale for $\frac{3}{4}$ of their original price of \$2.80 per box. What is the sale price per box?

28. Pop Tarts are on sale for $\frac{3}{4}$ of their original price. If the sale price per box is \$1.98, what's the original price?

29. Your Spirit and Uses instructor bought the new Lady Gaga CD used for \$10. If used CD's sell for $\frac{2}{3}$ of their new price, what is the new price of Lady Gaga's CD?

30. Round 7.45454 to the nearest
    (a) ten-thousandth
    (b) thousandth
    (c) hundredth
    (d) tenth
    (e) integer

31. For each of the given pairs of numbers, determine, without a calculator, which number is larger.
    (a) $\frac{1}{\sqrt{10}}$, $\frac{1}{3}$
    (b) $\frac{\sqrt{5}}{7}$, $\frac{1}{3}$
    (c) $\frac{\sqrt{5}}{7}$, $\frac{1}{\sqrt{10}}$