1. Calculate the following.

   a. $18 + \frac{3}{5} \times (-20)$

   b. $-\left(\frac{2}{3}\right)^2 \div \frac{4}{9} + 6$

2. Simplify the following.

   a. $8a + 5 - 3a + 9$

   b. $4(3x - 2) - 2(x + 5)$

   c. $\frac{3x + 6}{4} + \frac{x - 2}{2}$

3. Solve the following.

   a. $0.8y - 1.4 = 0.3y + 2.1$

   b. A student bought 8 notebooks and pens for 1360 yen. Each notebook costs 200 yen and each pen costs 120 yen. How many notebooks and how many pens did the student buy?

4. A school bus company uses buses to transport students for a field trip. The more buses they use, the fewer students each bus needs to carry.

   When **6 buses** are used, each bus carries **40 students**.

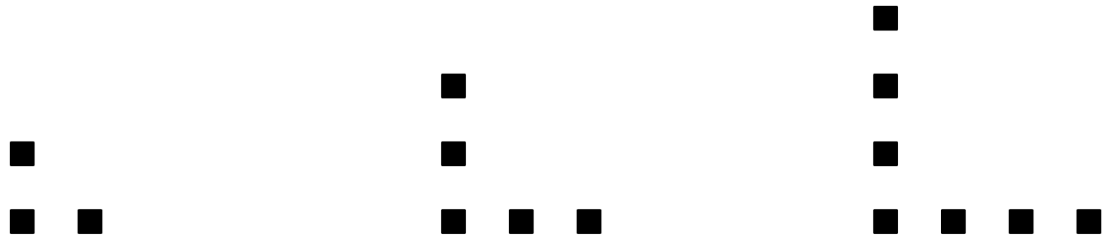
   Assume that the number of students per bus, s, is ***inversely proportional*** to the number of buses, b.

   a. Find the constant of proportionality.

   b. Write an equation connecting s and b.

   c. If the company uses **8 buses**, how many students will each bus carry?

5. Here is a pattern made of dots.



Pattern 1 Pattern 2 Pattern 3

a. Draw Pattern 4.

b. How many dots will there be in Pattern 8?

c. Which pattern will use 29 dots?

d. Explain why there is no pattern that uses 50 dots.

e. Write a general rule for finding the number of dots in Pattern (n).