

# Practice 1

For use with Section 1-1

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Solve each inequality in two ways.

1.  $3x + 5 \leq -16$

2.  $-\frac{1}{2}x - 5 > 11$

3.  $-5x + 3 \geq -15$

4.  $\frac{4x}{3} + 7 < 3$

5.  $\frac{x}{6} - 5 > -10$

6.  $-8x + 9 \leq 7$

7.  $\frac{1}{3} - \frac{x}{6} < 4$

8.  $4 - \frac{3}{2}x \geq 17$

9. The key steps of an algorithm for filling your car with gas at a self-service pump are out of order. Put these steps in the correct order.
- A. Place hose nozzle in gas pipe of car.
  - B. Turn on pump by lifting lever below hanger.
  - C. Pay cashier for the amount of gas you pumped.
  - D. Take nozzle off its hanger on pump.
  - E. If station requires a deposit before pumping, pay deposit.
  - F. Squeeze nozzle handle to pump; stops automatically.
10. Is there a decision in the algorithm in Exercise 9? If there is, which step involves the decision? Is there a loop in the algorithm in Exercise 9? If there is, describe the loop.
11. The following algorithm for finding the greatest common divisor (GCD) of two positive integers is called the Euclidean algorithm:
- Step 1:** Divide the larger integer by the smaller integer.
- Step 2:** Replace the larger of the two integers by the remainder from your division.
- Step 3:** Repeat steps 1 and 2 with the integers you now have until the remainder is 0.
- Step 4:** The last divisor is the GCD.
- a. Carry out the algorithm to find the GCD of 30 and 72.
  - b. Carry out the algorithm to find the GCD of 28 and 72.
  - c. Does the Euclidean algorithm contain a decision? If it does, describe the decision.
  - d. Does the Euclidean algorithm contain a loop? If it does, describe the loop.
12. *Open-ended* Write an algorithm to describe calling a friend on the phone. Include the possibilities that the line may be busy and that your friend may not be home.