## To pass this test you can have at most one error.

1. Solve for x: $\dfrac{2}{5} + x = \dfrac{1}{2} - \dfrac{3}{10}$.

2. Is 12 the solution to $x + 8 = 12 - 19 + 3$?

3. Solve for y: $y - 11y = 7$.

4. Solve for a: $11a = -20 + 42$.

5. Solve for x: $6(x + 2) = 42$.

6. Solve for w: $-4w + 17 = -35$.

7. Solve for z: $2(3z - 5) + 2 = 4z - 3(2z + 8)$.

8. Solve for x: $3(2x - 4) - 4(x + 5) = 6$.

9. Sketch the inequality $-\dfrac{1}{4}x > 3$ on a number line.

10. Solve the inequality algebraically (that is, isolate x on one side of an inequality): $3 + 5(2 - x) \geq -3(x + 5)$.

11. Graph on a number line the region that satisfied all the inequalities: $x \leq 4$ and $x > -3$ and $x > -2$.

12. Two in-line skaters, Nell and Katie, start from the same point and skate over the same course in the same direction. Nell skates at 12 mph and Katie skates at 14 mph. If they keep this pace up for 2.5 hours, how far apart will they be at the end of that time?

13. In her History course, Jill earned 83/100 and 71/100 on her two chapter tests. The chapter tests count 20% each towards her course grade, and the final exam is worth 60% of her course grade. What must Jill score on the final (out of 100) if she wishes to earn a final grade of at least 85/100?

14. A spherical weather balloon needs to hold at least 175 cubic feet of helium to be buoyant enough to lift the meteorological instruments. Will a helium filled balloon with a diameter of 8 feet stay aloft?

15. A ladder makes a right triangle against a house. If the angle between the ladder and the house is 38 degrees, what is the angle between the ladder and the ground?

16. Solve $T_C = \frac{5}{9}(T_F - 32)$ for T_F.

Solutions

1. $x = -\dfrac{1}{5}$ **2.** No **3.** $y = -\dfrac{7}{10}$ **4.** $a = 2$ **5.** $x = 5$ **6.** $w = 13$ **7.** $z = -2$ **8.** $x = 19$
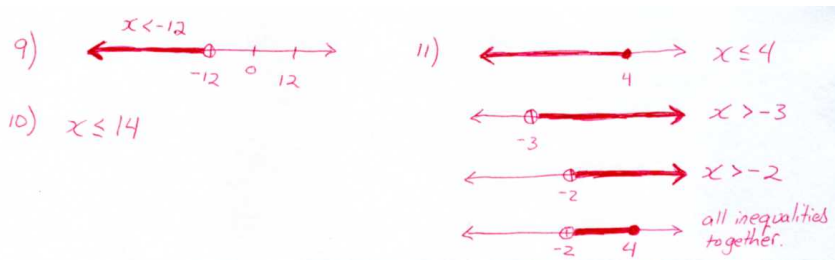
12. Nell and Katie will be 5 miles apart.

13. Jill must score 91 on the final to earn at least 85 in the course overall.

14. Yes, the balloon will stay aloft. It will hold 267 cubic ft of helium, which is greater than the 175 cubic ft required to lift the instruments.

15. The angle between the ladder and the ground is 52 degrees. **16.** $T_F = 32 + \frac{9}{5}T_C$.