Problem Set 19

1. Compute the greatest common factor of 120 and 200.

2. Apply the law of distributivity to simplify each of the following expressions.

   a) $\frac{1}{2}(x-4)$

   b) $3(-x+12)$

   c) $-1(a-7)$

   d) $2p(p-5)$

   e) $-a\left(a^3-2a^2+8\right)$

3. Simplify each of the following expressions.

   a) $3(2x-1)-5(x-2)-(2x-1)$

   b) $\frac{1}{2}(-6x+4)-\frac{1}{3}(-6x+12)+x$

4. Solve each of the following equations. Make sure to check your solutions.

   a) $3x-5=10x+9$

   b) $4x+2=-x+22$

   c) $8a+14=-2(a-7)$

   d) $b+3(2b-7)=7(b-2)$

   e) $\frac{1}{2}x-\frac{2}{5}=\frac{3}{8}x-\frac{19}{60}$

   f) $2(x-5)-8x=5(2-x)+10$

   g) $2(a+3)-4=-3a+8(a-5)$

5. a) A coat went on an 18% sale. The sale price is \$328. Find the original price.
   b) Sally got a 6% raise. Now she is making \$2650 per month. How much was she making before the raise?

6. The population of a town is currently 60 000. What would be the population after a year if during the next year, there will be a

   a) 15% decrease in the population?

   b) 15% increase in the population?

7. a) One number is 7 less than the other. Find these numbers if their sum is 31.
   b) One number is 31 less than the other. Find these numbers if their sum is 7.

8. The largest angle in a triangle is 10 degrees greater than five times the smallest angle. The middle angle is 10 degrees greater than twice the smallest angle. Find the three angles in the triangle.

9. Julia is 5 years younger than her brother, Tom. How old are they if the sum of their ages is 43?

10. a) One side of a rectangle is 6 in shorter than the other side. Find the sides of the rectangle if its perimeter is 120 in.
    b) One side of a rectangle is 6 in shorter than **twice** the other side. Find the sides of the rectangle if its perimeter is 120 in.

11. The largest angle in a triangle is three times as large as the smallest angle. The middle angle is 35° larger than the smallest angle. Find the angles in the triangle.

12. The sum of two numbers is 27. Their difference is 11. Find these numbers.

13. A cab driver charges customers \$2 for the first mile and then \$0.15 for each additional mile. After we take a drive, we owe \$4.40. How far did we drive?

14. I'm thinking of a number. When I subtract 4 from three times the opposite of this number, I get −19. What number am I thinking of?

15. Temperature can be measured in celsius and in Farnheit. The conversion formula is as follows: if the temperature is F Farenheits, then the same temperature is C celsius, where

$$F=\frac{9}{5}C+32$$

    a) Convert 75 celsius to farenheit.

    b) Convert 5 farenheit to celsius.