Name: _____

Place your answers in the spaces provided. You must show correct work to receive credit.

(8 pts) 1. Evaluate the following expression for $a = -3$ and $b = 4$:

$$10(2a + b) \div \left(a^2 - b\right) + |\ 6a\ |$$

(6 pts) 2. Multiply and express your answer in scientific notation.

$$\left(8.2 \times 10^{-25}\right)\left(2.5 \times 10^{11}\right)$$

(8 pts) 3. Perform the indicated operations and simplify. **Do not use a calculator**. Express your answer as a fraction in lowest terms.

$$\left(\frac{4}{5} - \frac{2}{3}\right) \div \frac{8}{25}$$

Name: _____

Place your answers in the spaces provided. You must show correct work to receive credit.

(10 pts) 4. Shane is going to invest $4200 at a simple interest rate of 8.5%. Use the formula, $A = P + P\,r\,t$ to find how long it will take for the investment to be worth $6300. Round your answer to one decimal place.

(8 pts) 5. Solve $W = \dfrac{2c + d}{4}$ for c.

$c =$

(8 pts) 6. Simplify.

$$4x - \left[3 - 2(5x + 6)\right] + 2x - 6$$

Name: _____

Place your answers in the spaces provided. You must show correct work to receive credit.

(12 pts) 7. Solve the following equations for x.

(6 pts) (a) $11x = \frac{1}{4}(24 + 4x)$

$x =$ [ ]

(6 pts) (b) $3(2x - 1) = 5(x + 2)$

$x =$ [ ]

(20 pts) 8. Simplify completely. Do not leave negative exponents in your answer.

(6 pts) (a) $(6x^{-12}y^5)(-2x^8y^2)$

[ ]

(6 pts) (b) $(3a^4b^{-3})^{-3}$

[ ]

(8 pts) (c) $\frac{5x^0x^{-9}y^{-4}z^3}{25x^{-7}y^3z^{12}}$

[ ]

Name: _____

Place your answers in the spaces provided. You must show correct work to receive credit.

(8 pts) 9. Translate the following problem into a mathematical equation. Be sure to name the variable. DO NOT SOLVE THE EQUATION:

A boat travels at a rate of 23 km/h in still water. It is traveling in a river that has a current of 8 km/h. How long would it take the boat to travel 75 km downstream?

(12 pts) 10. A piece of wire 15 meters long is cut into three pieces. The second piece is $\frac{1}{3}$ as long as the first piece, while the third piece is 4 meters longer than the second piece. Find the length of each piece. (Name a variable, set up an equation, and solve.)

length of first piece =

length of second piece =

length of third piece =

Name: _____