

Show all work to receive full credit. You may use a calculator. CHECK YOUR WORK!!!!

1. (6 pts) Evaluate $2x^2 + 6x + 5$ when $x = -3$.

$$\begin{aligned} 2(-3)^2 + 6(-3) + 5 \\ 2(9) + 18 + 5 \\ 18 - 18 + 5 &= \boxed{5} \end{aligned}$$

2. (6 pts) Solve: $-6(x + 7) + 5 = 2(x - 3) + 3x$

$$\begin{aligned} -6x - 42 + 5 &= 2x - 6 + 3x \\ -6x - 37 &= 5x - 6 \\ \underline{+6x + 6} \quad \underline{+6x + 6} & \\ \frac{-31}{11} &= \frac{11x}{11} \end{aligned} \quad \boxed{X = \frac{-31}{11}}$$

3. (6 pts) Write an equation that represents the problem. Then solve.

The cost of a CD Player including a 6% sales tax is \$344.50. Determine the cost of the CD Player before tax.

$$\text{TOTAL} = \text{COST} + \text{TAX}$$

$$\text{TAX} = 0.06 \times \text{COST}$$

$$344.50 = X + 0.06X$$

$$\frac{344.50}{1.06} = \frac{1.06X}{1.06}$$

$$X = \boxed{\$325}$$

4. (6 pts) Evaluate $A = P(1 + rt)$ when $P = 3000$, $r = 0.02$, and $t = 6$.

$$A = 3000(1 + 0.02(6))$$

$$= \boxed{3360}$$

5. (6 pts) Solve $2x + 5y = 15$ for y .

$$5y = -2x + 15$$

$$\frac{5y}{5} = \frac{-2x}{5} + \frac{15}{5}$$

$$y = -\frac{2}{5}x + 3$$

6. (10 pts) X varies directly as Y and inversely as the square of Z . If $X = 10$ when $Y = 8$ and $Z = 2$, find X when $Y = 12$ and $Z = 3$.

$$X = \frac{kY}{Z^2} \quad k = \frac{XZ^2}{Y} = \frac{10(2)^2}{8} = \underline{5}$$

$$X = \frac{5Y}{Z^2} = \frac{5(12)}{3^2} = \frac{60}{9} = \boxed{\frac{20}{3} \approx 6.67}$$

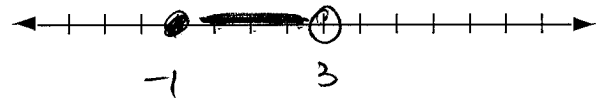
7. (8 pts) Solve the inequality and then graph the solution:

$$-8 < -4a + 4 \leq 8$$

$$\begin{array}{ccc} -4 & -4 & -4 \end{array}$$

$$\frac{-12}{-4} < \frac{-4a}{-4} \leq \frac{4}{-4}$$

$$3 > a \geq -1 \quad \Rightarrow$$



$$\boxed{-1 \leq a < 3}$$

8. (8 pts) A car rental company has two rental rates. Rate 1 is \$54 per day plus \$0.12 per mile. Rate 2 is \$108 per day plus \$0.06 per mile. If you plan to rent for one week, how many miles would you need to drive to pay less by taking Rate 2? (Round to the nearest mile)

$$\text{RATE 1: } 54 + 0.12X$$

$$\text{RATE 2: } 108 + 0.06X$$

$$\text{RATE 1} > \text{RATE 2}$$

$$54 + 0.12X > 108 + 0.06X$$

$$\begin{array}{r} -54 \quad -0.06X \\ \hline 0.06X > 54 \\ \hline 0.06 \quad 0.06 \end{array}$$

$$X > 900 \text{ MILES}$$

$$\text{MORE THAN 900 MILES}$$

9. (5 pts) Change 165 mm to m.

$$0.165 \text{ m}$$

$$165 \text{ mm} \times \frac{1 \text{ m}}{1000 \text{ mm}}$$

$$0.165 \text{ m}$$

10. (6 pts) If one orange weighs approximately 200 g, how many kilograms would a sack of 20 oranges weigh?

$$200 \text{ g} \times 20 \times \frac{1 \text{ Kg}}{1000 \text{ g}} = 4 \text{ Kg}$$

11. (3 pts) The outside temperature on a sunny day in California is about:

A. 88° C

B. 55° C

C. 31° C



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

$$= \frac{9}{5} (31) + 32$$

$$= 55.8 + 32$$

$$= 87.8^\circ \text{ F}$$

12. (5 pts) Convert 110 lb to kilograms.

$$110 \text{ lb} \times \frac{1 \text{ Kg}}{2.2 \text{ lbs}}$$

$$= 50 \text{ Kg}$$

13. (5 pts) Convert 625 cm to inches.

$$625 \text{ cm} \times \frac{1 \text{ in}}{2.54 \text{ cm}} = \boxed{246.1 \text{ cm}}$$

14. (5 pts) Change 20° F to degrees Celsius.

$$C = \frac{5}{9}(F - 32) = \frac{5}{9}(20 - 32) = \frac{5}{9}(-12) = -\frac{20}{3} = \boxed{-6.7^\circ \text{C}}$$

15. (15 pts) Al's home fish tank is 36 cm long, 26 cm wide, and 30 cm deep.

A. Determine the volume of the fish tank in cubic centimeters.

B. Determine the number of liters of water the fish tank could hold.

C. Determine the weight of the water in the fish tank.

$$A.) V = (36)(26)(30) = \boxed{28,080 \text{ cm}^3}$$

$$B.) V(l) = 28,080 \text{ cm}^3 \times \frac{1 \text{ ml}}{1 \text{ cm}^3} \times \frac{1 \text{ l}}{1000 \text{ ml}} = \boxed{28.08 \text{ l}}$$

$$C.) \text{ MASS of } H_2O = 28.08 \text{ l} \times \frac{1 \text{ kg of } H_2O}{1 \text{ l of } H_2O} = \boxed{28.08 \text{ kg}}$$