

1. Decide if each of the following are **equations** or **expressions**. You do not need to solve the equations or evaluate the expressions.

(a) $5x + 13$

(b) $4x + 3 = 12$

(c) $\frac{6(x-1)}{4} + 1 = 5$

(d) $3(x+2)^2 - (45)^3$

(e) $3^2 - 5|2x - 15|$

(f) $3[(x+2)^2 + 2(x-4)] = 3\sqrt{4(2x+1)}$

2. Determine whether each of the following values for the given variable is a solution to the given equation. Show the calculations that lead to your final conclusions.

(a) $x - 4 = 12$ and $x = 8$

(b) $\frac{(3+x)}{4} = 3$ and $x = 9$

*3. A disease has three treatments, depending on the percent of the body affected by the disease. Doctors have the treatment down to three stages as follows;

Stage 1: less than 15%

Stage 2: 15-25%

Stage 3: 25-50%

For anything more than 50% there is no cure. If the disease is spreading according to the formula $P = 6d + 5$ where P is the percent of the body affected and d is the number of days, fill out the following chart and explain to a patient what you observed.

Days	% of body Affected
1	
2	
3	
4	
5	
6	
7	
8	

4. Bobby wants to go on a school trip that will cost him \$250. He comes up with an equation that represents how much he needs to save each week as follows:

$$25w + 30 = 250, \text{ where } w \text{ is the number of weeks spent saving.}$$

(a) If he has 9 weeks to save will he have enough money to go on the trip? Explain.

(b) He also wants to have \$100 spending cash on the trip. He decides to save an extra \$10 a week. To do this he changes his original equation as follows;

$$25w + 30 + 10w = 250 + 100, \text{ where } w \text{ is the number of weeks spent saving.}$$

Will nine weeks be enough time now? Show your calculations and Explain.

R1. Find the product and express your answer in scientific notation: $(1.57 \times 10^3)(6.9 \times 10^2)$

*R2. Mr. Johnson traveled 423 miles on 11.5 gallons of gas in his new car. Find the number of miles per gallon the car gets and express your answer to the nearest tenth.

R3. How many inches are in 4.2 yards of ribbon?

R4. Simplify: $(2x+1)^2$

R5. Factor: $8m - 16$

*R6. Factor: $16m - 8$

*R7. Evaluate $12x + 12y$ when $x = 1$ and $y = -1$

R8. If the expression $2x + 5$ is equivalent to 3, what is the value of $4x + 10$?

1. a. Expression

b. Equation

c. Equation

d. Expression

e. Expression

f. Equation

2. a. No

b. Yes

3. Day 1 – Stage 1

Days 2 & 3 – Stage 2

Days 4-7 – Stage 3

Day 8 without treatment, there is no cure.

4. a. Yes, he will need about 8.8 weeks

b. No, he will need about 9.1 weeks

R1. 1.0833×10^6

R2. 36.8 mpg

R3. 151.2 inches

R4. $4x^2 + 4x + 1$

R5. $8(m - 2)$

R6. $8(2m - 1)$

R7. 0

R8. 6