

Name: _____

Math 422- Mrs. Bagala

Date: _____

Quarter 1 Review 2

1. Write the converse, inverse and contrapositive of the following conditional statement.

If I train, then I will run the marathon.

Converse: _____

Inverse: _____

Contrapositive: _____

2. Simplify the expression: $\frac{x^2 - 5x}{x^2 + 2x - 35} \cdot \frac{x^2 - 49}{4x - 28}$

3. A gardener is using 6 identical pansy plants and 4 identical daisy plants to line a walkway. How many different ways can the gardener line up the plants?

4. Factor the expressions completely:

$6a^4b - 21a^3b - 12a^2b$	$2x^4 - 10x^2 + 8$	$2h^3 - 8h^2 + 3h - 12$
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5. If $3x + 2y = 5$ and $4x - 3y = -16$, find the values of x and y .

6. If p and q are true statements and r is a false statement, determine the truth value of each:

$(p \rightarrow r)$	$p \wedge (r \leftrightarrow q)$	$(\sim q \wedge r) \leftrightarrow p$	$(p \vee \sim q) \rightarrow (r \wedge q)$
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7. Solve and check: $\frac{7}{x+5} - \frac{6}{x^2+7x+10} = \frac{9}{x+5}$.

8. A wallet contains 3 twenty dollar bills, 2 five dollar bills, and 4 single dollar bills. If 2 bills are drawn at random, without replacement, find:

P(\$20 then \$1)

P(\$6)

9. Find all values of x that make the expression $\frac{x^2 - x - 12}{2x^3 + 2x^2 - 40x}$ undefined.

10. Solve the equation $30x^3 = 15x + 35x^2$ for all values of x .

11. Use the table below to determine:

(a) the probability that if a female is chosen at random she will be at least 40 years old

Gender	Age		Total
	Under 40	40 or older	
Male	12	2	14
Female	8	3	11
Total	20	5	25

(b) the probability that a person chosen at random is male

12. Construct a truth table to determine if the statements $(p \rightarrow \sim q) \wedge (\sim p \rightarrow q)$ and $(\sim p \vee \sim q) \rightarrow (p \wedge q)$ are logically equivalent.

13. Suppose that 7 people enter a swim meet. Assuming that there are no ties, in how many ways could the gold, silver, and bronze medals be awarded?

14. Express $\frac{y+15}{25-y^2} + \frac{2}{y-5}$ in simplest form.

15. Given the expression $\frac{2x^2-10x+12}{x^2-4}$:

(a) State all values of x that make the expression undefined.

(b) Simplify the expression.

(c) Give an example of a rational expression that is always defined.