MAT 1033 - 20181-II - Test 2
Mr. Foley

Name_____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Factor out the greatest common factor.

1) $48m^9 + 60m^5 - 60m^3$ 1) _____

Factor by grouping.

2) $12a^3 - 9a^2b - 16ab^2 + 12b^3$ 2) _____

Factor completely. If the polynomial cannot be factored, write prime.

3) $x^2 - x - 40$ 3) _____

Factor completely.

4) $3x^2 - 18x + 27$ 4) _____

5) $x^2 + 7xy + 12y^2$ 5) _____

Factor by grouping.

6) $12x^2 + 11xt + 2t^2$ 6) _____

7) $20z^2 - 7z - 6$ 7) _____

8) $9x^2 + 12xt + 4t^2$ 8) _____

Factor the binomial completely. If it is prime, say so.

9) $64x^2 - 9$ 9) _____

10) $81y^4 - 4$ 10) _____

Solve the equation.

11) $\left(5x - \frac{1}{8}\right)\left(x + \frac{1}{5}\right)$ 11) _____

12) $n^2 - 49 = 0$ 12) _____

Solve the problem.

13) A rectangle has a length of $x + 3$ and a width of $x - 3$, and has an area of 40 square units. Find the length and width of the rectangle. ($A = LW$) 13) _____

Rewrite the rational expression with the indicated denominator.

14) $\frac{a}{a + 6b} = \frac{?}{a^2 - 36b^2}$ 14) _____

Write the rational expression in lowest terms.

15) $\frac{a^2 - 3a}{(a + 9)(a - 3)}$ 15) _____

16) $\frac{m^2 - 9m}{9 - m}$ 16) _____

Multiply. Write the answer in lowest terms.

17) $\frac{2p - 2}{p} \cdot \frac{7p^2}{4p - 4}$ 17) _____

Multiply or divide as indicated. Write the answer in lowest terms.

18) $\frac{k^2 + 8k + 16}{k^2 + 10k + 24} \cdot \frac{k^2 + 6k}{k^2 + 13k + 36}$ 18) _____

19) $\frac{y^3 - 9y}{y^2 - 81} \div \frac{y^2 + 16y + 60}{y^2 + 15y + 54}$ 19) _____

Factor the polynomial completely.

20) $8s^3 + 1$ 20) _____

Solve the problem.

21) A contractor mixes concrete from bags of pre-mix for small jobs. How many bags with 3% cement should he mix with 7 bags of 5% cement to produce a mix containing 4% cement? 21) _____

1) $12m^3 (4m^6 + 5m^2 - 5)$
2) $(3a^2 - 4b^2)(4a - 3b)$
3) Prime
4) $3(x - 3)(x - 3)$
5) $(x + 3y)(x + 4y)$
6) $(4x + t)(3x + 2t)$
7) $(4z - 3)(5z + 2)$
8) $(3x + 2t)(3x + 2t)$
9) $(8x + 3)(8x - 3)$
10) $(9y^2 + 2)(9y^2 - 2)$
11) $\left\{\frac{1}{40}, -\frac{1}{5}\right\}$
12) $\{-7, 7\}$
13) width = 4 units; length = 10 units
14) $\frac{a^2 - 6ab}{a^2 - 36b^2}$
15) $\frac{a}{a + 9}$
16) $-m$
17) $\frac{7p}{2}$
18) $\frac{k}{k + 9}$
19) $\frac{y(y^2 - 9)}{(y - 9)(y + 10)}$
20) $(2s + 1)(4s^2 - 2s + 1)$
21) 7 bags