Math 3 Name_____ ID: 1

Midterm Review #3

Date_____ Period____

Divide.

1) $(15m^3 - 18m^2 - 111m - 57) \div (5m + 9)$

2) $(80a^3 + 54a^2 - 104a + 20) \div (10a - 2)$

3) $(5n^3 + 9n^2 + 12n - 39) \div (5n - 6)$

4) $(15x^3 - 34x^2 + 50x - 22) \div (5x - 3)$

Factor each completely.

5) $24x^3 + 15x^2 - 32x - 20$

6) $35k^3 - 56k^2 + 40k - 64$

7) $-648x^3 + 375$

8) $125m^3 - 8$

9) $125u^3 + 64$

10) $32x^3 - 4$

11) $2m^4 - 38m^2 + 180$

12) $3x^4 - 15x^2$

13) $3x^4 - 6x^2 - 189$

14) $6m^4 + 6m^2 - 252$

Evaluate each function at the given value.

15) $f(n) = n^4 - 4n^3 - 4n^2 - 2n - 19$ at $n = 5$

16) $f(n) = -5n^4 + 26n^3 - 9n^2 + 18n + 17$ at $n = 5$

17) $f(x) = x^4 + x^3 - 14x^2 - 3x + 9$ at $x = -4$

Describe the end behavior of each function.

18) $f(x) = x^4 + 4x^3 + 3x^2 - 5x - 5$

19) $f(x) = -x^4 + 2x^2 - x - 2$

20) $f(x) = x^4 - x^2 + x$

21) $f(x) = x^4 - 4x^2 + 3x + 2$

Answers to Midterm Review #3 (ID: 1)

1) $3m^2 - 9m - 6 - \frac{3}{5m + 9}$

2) $8a^2 + 7a - 9 + \frac{1}{5a - 1}$

3) $n^2 + 3n + 6 - \frac{3}{5n - 6}$

4) $3x^2 - 5x + 7 - \frac{1}{5x - 3}$

5) $(3x^2 - 4)(8x + 5)$

6) $(7k^2 + 8)(5k - 8)$

7) $3(-6x + 5)(36x^2 + 30x + 25)$

8) $(5m - 2)(25m^2 + 10m + 4)$

9) $(5u + 4)(25u^2 - 20u + 16)$

10) $4(2x - 1)(4x^2 + 2x + 1)$

11) $2(m^2 - 10)(m - 3)(m + 3)$

12) $3x^2(x^2 - 5)$

13) $3(x^2 + 7)(x - 3)(x + 3)$

14) $6(m^2 + 7)(m^2 - 6)$

15) -4

16) 7

17) -11

18) Rises to the left. Rises to the right

19) Falls to the left. Falls to the right

20) Rises to the left. Rises to the right

21) Rises to the left. Rises to the right