Name_____

Math 3 Unit 2 Practice Test

Divide.

1) $\left(18b + 24b^2 + 3b^4 + 2 + 6b^5\right) \div \left(3 + 6b\right)$

2) $\left(-1 - 2x^4 - 81x^2 + 9x^5 - 18x\right) \div \left(-2 + 9x\right)$

State the possible rational zeros for each function. Then factor each and find all zeros.

3) $f(x) = 2x^5 - 4x^4 - x^3 + 2x^2 - 3x + 6$

4) $f(x) = 25x^6 - 25x^4 - 4x^2 + 4$

Find the factors of the polynomial. Find the polynomial equation.

5)   Zeros: $\left\{ \dfrac{\pm i\sqrt{15}}{5}, \pm\sqrt{2} \right\}$

Factors:

Polynomial:
Equation

6)   Zeros: $\left\{ \dfrac{\pm i\sqrt{30}}{5}, \pm 1 \right\}$

Factors:

Polynomial:
Equation

7)   Zeros: $\left\{ \dfrac{\pm 3\sqrt{5}}{5}, \pm i\sqrt{5} \right\}$

Factors:

Polynomial:
Equation

Name_____

Math 3 Unit 2 Practice Test

Divide.

1) $(18b + 24b^2 + 3b^4 + 2 + 6b^5) \div (3 + 6b)$

$b^4 + 4b + 1 - \dfrac{1}{3 + 6b}$

2) $(-1 - 2x^4 - 81x^2 + 9x^5 - 18x) \div (-2 + 9x)$

$x^4 - 9x - 4 - \dfrac{9}{-2 + 9x}$

State the possible rational zeros for each function. Then factor each and find all zeros.

3) $f(x) = 2x^5 - 4x^4 - x^3 + 2x^2 - 3x + 6$

Possible rational zeros:

$\pm 1, \pm 2, \pm 3, \pm 6, \pm \dfrac{1}{2}, \pm \dfrac{3}{2}$

Factors to: $f(x) = (x - 2)(2x^2 - 3)(x^2 + 1)$

Zeros: $\left\{ 2, \dfrac{\sqrt{6}}{2}, -\dfrac{\sqrt{6}}{2}, i, -i \right\}$

4) $f(x) = 25x^6 - 25x^4 - 4x^2 + 4$

Possible rational zeros:

$\pm 1, \pm 2, \pm 4, \pm \dfrac{1}{5}, \pm \dfrac{2}{5}, \pm \dfrac{4}{5}, \pm \dfrac{1}{25}, \pm \dfrac{2}{25}, \pm \dfrac{4}{25}$

Factors to: $f(x) = (x - 1)(x + 1)(5x^2 - 2)(5x^2 + 2)$

Zeros: $\left\{ 1, -1, \dfrac{\sqrt{10}}{5}, -\dfrac{\sqrt{10}}{5}, \dfrac{i\sqrt{10}}{5}, -\dfrac{i\sqrt{10}}{5} \right\}$

Math 3 Unit 3 Test Part B ID 1

Find the factors of the polynomial. Find the polynomial equation.

5)   Zeros: $\left\{ \frac{\pm i\sqrt{15}}{5}, \pm\sqrt{2} \right\}$

Factors: $(25x^2 + 15)(x^2 - 2) = 0$

Polynomial: $25x^4 - 35x^2 - 30 = 0$
Equation

6)   Zeros: $\left\{ \frac{\pm i\sqrt{30}}{5}, \pm 1 \right\}$

Factors: $(x^2 - 1)(25x^2 + 30) = 0$ or $(x - 1)(x + 1)(25x^2 + 30) = 0$

Polynomial: $25x^4 + 5x^2 - 30 = 0$
Equation

7)   Zeros: $\left\{ \frac{\pm 3\sqrt{5}}{5}, \pm i\sqrt{5} \right\}$

Factors: $(x^2 + 5)(25x^2 - 45) = 0$

Polynomial: $25x^4 + 80x^2 - 225 = 0$
Equation