Class Name : **MATH 1050/1051 Fall 2018**

Instructor Name : **Nguyen**

Student Name : _____

Instructor Note :

1. Find the range of the quadratic function.

$$f(x) = -x^2 + 6x - 8$$

Write your answer using interval notation.

2. Find all real zeros of the function.

$$h(x) = -3x\left(x^2 - 16\right)(x - 5)$$

If there is more than one answer, separate them with commas.

3. Find a polynomial $f(x)$ of degree 4 that has the following zeros.

$$-1,\ 0,\ 6,\ 5$$

Leave your answer in factored form.

4. Choose the end behavior of the graph of each polynomial function.

(a) $f(x)=x^6+9x^4+x^2+8x$ {(a) Rises, (b) Falls} to the left and {(a) rises, (b) falls} to the right.
(b) $f(x)=4x^3+5x^2-6x+7$ {(a) Rises, (b) Falls} to the left and {(a) rises, (b) falls} to the right.
(c) $f(x)=-3x(x+1)(x-4)^2$ {(a) Rises, (b) Falls} to the left and {(a) rises, (b) falls} to the right.

5. Divide.

$$\left(5x^2+31x+25\right)\div(x+5)$$

Your answer should give the quotient and the remainder.

Quotient:

Remainder:

6. Divide.

$$\left(4x^3+18x^2+8x-15\right)\div\left(2x^2+4x\right)$$

Your answer should give the quotient and the remainder.

Quotient:

Remainder:

7. Divide.

$$\left(11x - 12x^3 + 2\right) \div \left(-4x^2 + 5\right)$$

Write your answer in the following form: Quotient $+ \dfrac{\text{Remainder}}{-4x^2+5}$.

$$\frac{11x - 12x^3 + 2}{-4x^2+5} = \square + \frac{\square}{-4x^2+5}$$

8. Graph all vertical and horizontal asymptotes of the function.

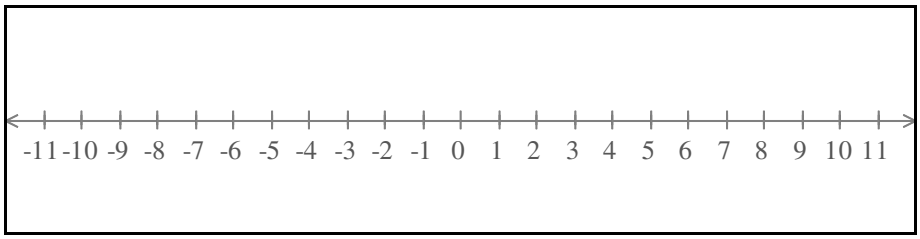
$$f(x) = \frac{-9}{-2x-1}$$

9. Graph all vertical and horizontal asymptotes of the function.

$$f(x) = \frac{-6x-5}{-3x-6}$$

10. Graph the solution to the following inequality on the number line.

$$(x-6)(x+1) < 0$$



Obj. 8 #5 Answers for class MATH 1050/1051 Fall 2018

1. $(-\infty, 1]$

2. zero(s): $0, 4, -4, 5$

3. $f(x) = x(x+1)(x-6)(x-5)$

4. (a) Rises to the left and rises to the right
(b) Falls to the left and rises to the right
(c) Falls to the left and falls to the right

5.

Quotient: $5x+6$

Remainder: -5

6.

Quotient: $2x+5$

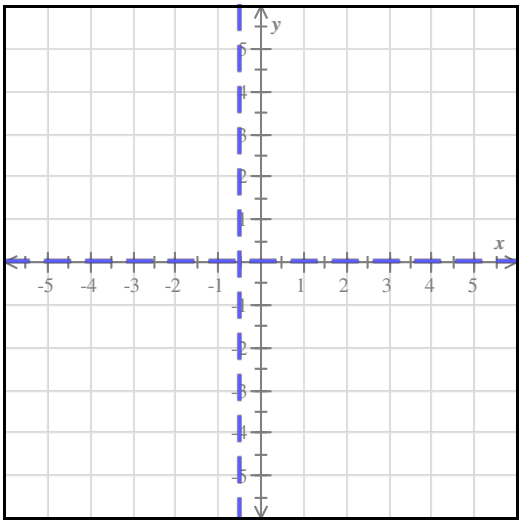
Remainder: $-12x-15$

7.

$$\frac{11x - 12x^3 + 2}{-4x^2+5}$$

$$= 3x + \frac{-4x+2}{-4x^2+5}$$

8.



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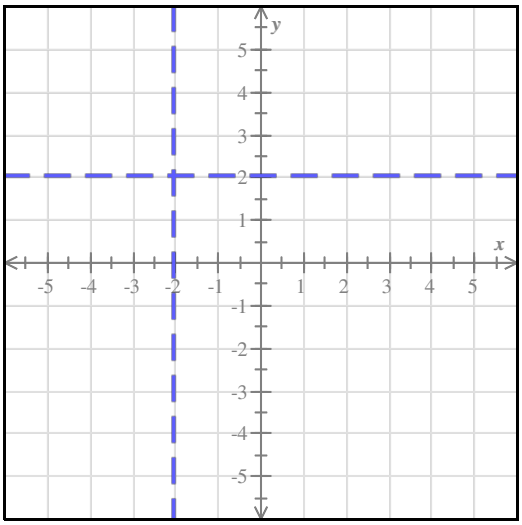

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