

REVIEW FOR QUARTER 1 AND QUARTER 2 QUIZ

NAME: _____

DUE: _____

PART 1: FUNCTIONS (Unit 2)

1. Factor Completely. Polynomial GCF. $3x^2(2x + 3)^2 + x^3(2)(2x+3)(3)$	2. If $f(x) = 3x - 5$, find the following: $\frac{f(x+2) - f(2)}{2}$
3. Find $\frac{f(x+h) - f(x)}{h}$ when $f(x) = 3x^2 - x + 1$	4. $r(x) = x^3 - 2x + 1$; find $r(2a^3)$

Determine if each function is even, odd, or neither.

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

Find the domain analytically.

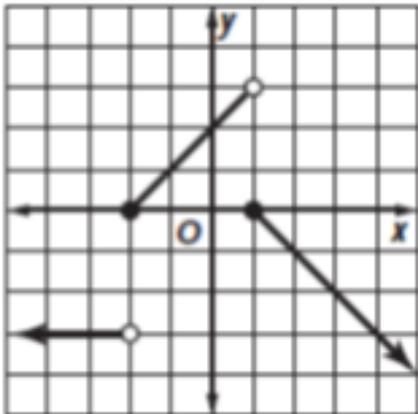
7. $f(x) = 6x^2 - 12x - 8$

8. $f(x) = \frac{1}{\sqrt{3-2x}}$

9. $f(x) = \sqrt{36-t^2}$

10. $f(x) = \frac{2}{2-x}$

11. Write the equation of the piecewise graph:



12. Find the average rate of change for $f(x)$ between the given values.

$f(x) = -3x^2 - x$, From 5 to 6

For the functions below, find $(g \circ f)(x)$ and find the domain.

13. $f(x) = x^2 - 3$; $g(x) = 2x - 1$

14. $f(x) = x + 3$; $g(x) = \frac{5}{x+5}$

Complete the function operations.

15. $f(x) = \frac{5x+4}{5x-7}$ and $g(x) = \frac{7x}{5x-7}$

Find $(f - g)(x)$.

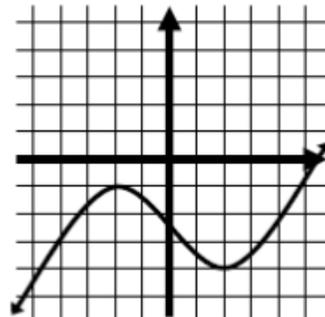
16. $f(x) = 2x^3$ and $g(x) = 3x - 1$

Find $(f \cdot g)(x)$.

Find the inverse of each function.

17. Find the inverse of the function:
 $f(x) = 3x + 10$

18. Determine the **increasing** interval(s) of the given graph.



PART 2: POLYNOMIAL AND RATIONAL FUNCTIONS (Unit 3)

Polynomial Functions:

	Function	Degree	Lead Coeff.	End Behavior
19	$f(x) = -2x^3 - x^2 + 5x - 1$			$x \rightarrow \infty, f(x) \rightarrow \underline{\hspace{2cm}}$ $x \rightarrow -\infty, f(x) \rightarrow \underline{\hspace{2cm}}$
20	$g(x) = 3(x+2)(x-4)$			$x \rightarrow \infty, f(x) \rightarrow \underline{\hspace{2cm}}$ $x \rightarrow -\infty, f(x) \rightarrow \underline{\hspace{2cm}}$

<p>21. Identify the zeros, their multiplicities, and whether the graph will bounce or cross at the zero for the function below.</p> $f(x) = x^2(x+3)(x-4)^3$ <p>Zeros:</p> <p>Mult:</p> <p>B/C:</p>	<p>22. List the possible rational zeros of the polynomial function.</p> $f(x) = 3x^3 + 4x^2 + x - 10$
<p>23. Find all zeros, given a factor of $(x - 1)$ For the function $f(x) = x^4 + 3x^2 - 4$</p>	<p>24. A farmer has 1600 yards of fencing to enclose a rectangular garden. Express the area, A, as a function of the width, w.</p>

25. Find the real zeros of $f(x) = 4x^3 - 12x^2 - x + 15$.

Rational Functions:

26. Find the slant asymptote:

$$f(x) = \frac{x^3 - 4x^2 + 3x + 7}{x^2 + 1}$$

27. Find the removable discontinuity:

$$f(x) = \frac{x^3 + 8}{x^2 + x - 2}$$

	Vertical Asymptote	Horizontal Asymptote	Domain	Range
28. $y = \frac{3x^2 - 7}{4 - x^2}$				
29. $f(x) = \frac{3x - 7}{x^2 - 5x - 14}$				

30. Find the x and y intercepts for the function: $f(x) = \frac{x^2 + 4x + 3}{x + 2}$

PART 3: TRIGONOMETRY (Unit 4) ... Review the recent test review packet

31. Convert.

100° to radians	$\frac{3\pi}{5}$ to degrees
-----------------	-----------------------------

32. Evaluate.

a. $\cos(\pi)$	b. $\sin\left(\frac{13\pi}{3}\right)$	f. $\tan\left(-\frac{7\pi}{4}\right)$
g. $\cos\left(-\frac{14\pi}{3}\right)$	h. $\sec\left(-\frac{5\pi}{3}\right)$	i. $\csc\left(-\frac{\pi}{3}\right)$

33. Find the amplitude of:
 $y = 6 \cos(\theta)$

34. Find the phase shift of the function:
 $y = -2 \sin\left(x - \frac{\pi}{2}\right)$

35. Find the period of the function:
 $y = \cos(4\theta) - 2$

36. Find the vertical shift of the function:
 $y = 2 \tan \theta + 3$

37. Given the terminal point of θ lies on the point (12, 16), find $\csc \theta$.

38. Given $\sin \theta = -\frac{2}{3}$ and $\tan \theta > 0$.
find $\sec \theta$.