

No quiz today, 3.1 HW is due today, but take a minute right now to get your ordering figured out for 6 & 7 on pg.8

Questions on 3.2 HW??

SM3H-Module 3 SE.pdf - Adobe Acrobat Reader DC

File Edit View Window Help

Home Tools SM3H-Module 3 S... x

9 / 41 125%

3. $f(x) * g(x)$

$f(x) = x + 2$
 $g(x) = 2x - 4$
 $f(x) \cdot g(x) = (x + 2)(2x - 4)$
 $= 2x^2 - 4x + 4x - 8$
 $= 2x^2 - 8$
 $2(x^2 - 4) = 2(x - 2)(x + 2)$

Mathematics Vision Project | MVP
 Licensed under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported license

$x = 2, -2$

$y = 2(0 - 2)(0 + 2)$
 $y = -8$

8.50 x 11.00 in 10

6. Determine where you would insert add the following expressions in question 3 (go insert these expressions where they belong in your list):

$$\left(\frac{1}{2}\right)^x \quad x^7 \quad -x^5 \quad x^6 \quad x^5$$

7. Now insert these same expressions to your list in question 4.

8. Write your process for ordering one variable polynomial expressions for both extremes (when x approaches infinity as well as when x approaches negative infinity).

* polynomials: expressions with x s.
* degree: highest power/exponent in a polynomial

$$2 + x - x^3$$

$$x + 4 + x^2$$

$$3x^2 - 2 + x$$

3.3 All About Behavior

A Practice Understanding Task



Part I: For each situation:

- Determine the function type. If it is a polynomial, also state the degree of the polynomial and whether it is an even degree polynomial or an odd degree polynomial.
- For each, state the end behavior based on your knowledge of the function
Use the format: As $x \rightarrow -\infty, f(x) \rightarrow \underline{\hspace{1cm}}$ and as $x \rightarrow \infty f(x) \rightarrow \underline{\hspace{1cm}}$

- $f(x) = 3 + 2x$
- $f(x) = x^4 - 16$
- $f(x) = 3^x$
- $f(x) = x^3 + 2x^2 - x + 5$
- $f(x) = -2x^3 + 2x^2 - x + 5$
- $f(x) = \log_2 x$
- $f(x) = -2(x - 3)(x + 4)$
- $f(x) = \sqrt{x} - 3$
- $f(x) = 3(x - 1)(x + 2)(x - 4)$

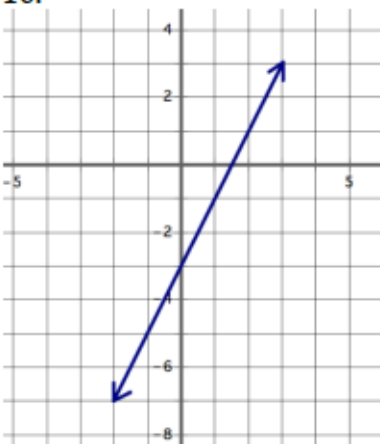
E.B.

As $x \rightarrow -\infty, f(x) \rightarrow -\infty$
As $x \rightarrow \infty, f(x) \rightarrow \infty$

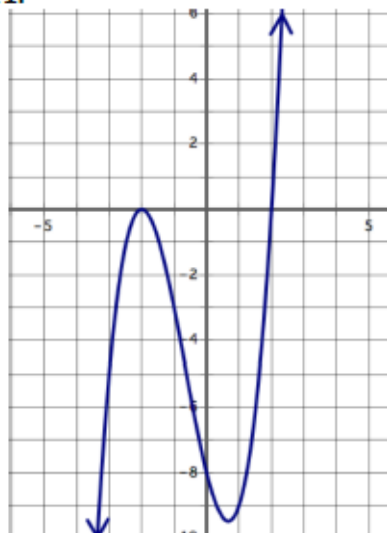
polynomial
degree 3
odd

Use the graphs below to describe the end behavior of each function. Use the same format as above.

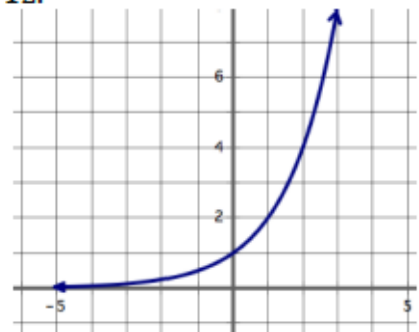
10.



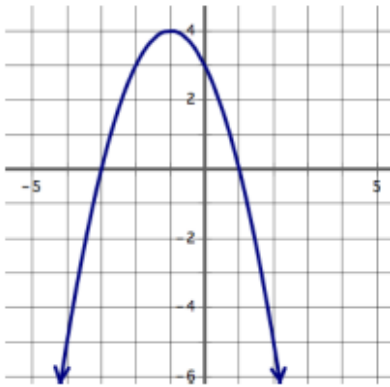
11.



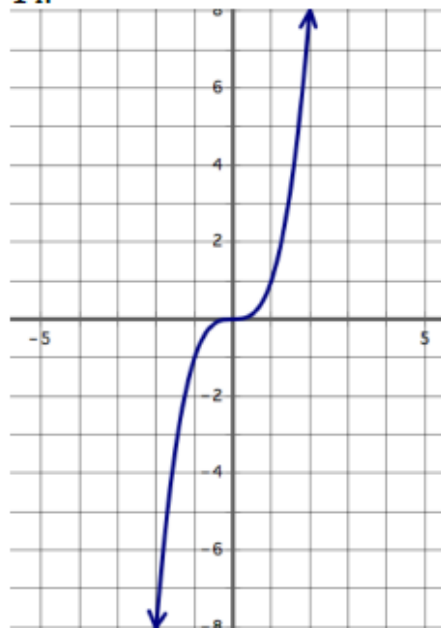
12.



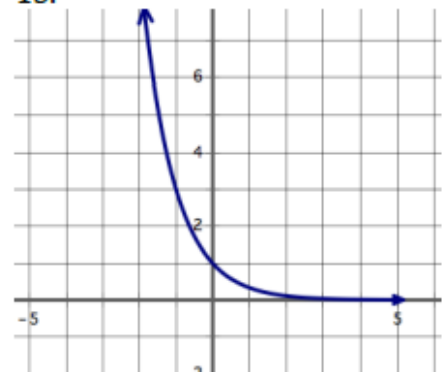
13.



14.



15.



Part II: Use the functions from problems 1-18 to answer the following without finding the solution to each problem. Write a short explanation for each answer.

19. Compare problems 4 and 5: Which has the greatest value as $x \rightarrow \infty$?
20. Compare problems 6 and 12: Which has the greatest value as $x \rightarrow \infty$?
21. Compare problems 8 and 10: Which has the greatest value at as $x \rightarrow \infty$?
22. Compare problems 2 and 4: Which of these two polynomials has the highest degree?
23. Compare problems 7 and 13: Which has the highest maximum value?
24. Compare problems 8 and 11: Which has the greatest average rate of change from $[15, 20]$?
25. Compare problems 12 and 14: Which grows faster as $x \rightarrow \infty$?
26. Extension: Create three comparison problems of your own (be sure you know the answer).

Homework

3.3 "Ready, Set, Go"