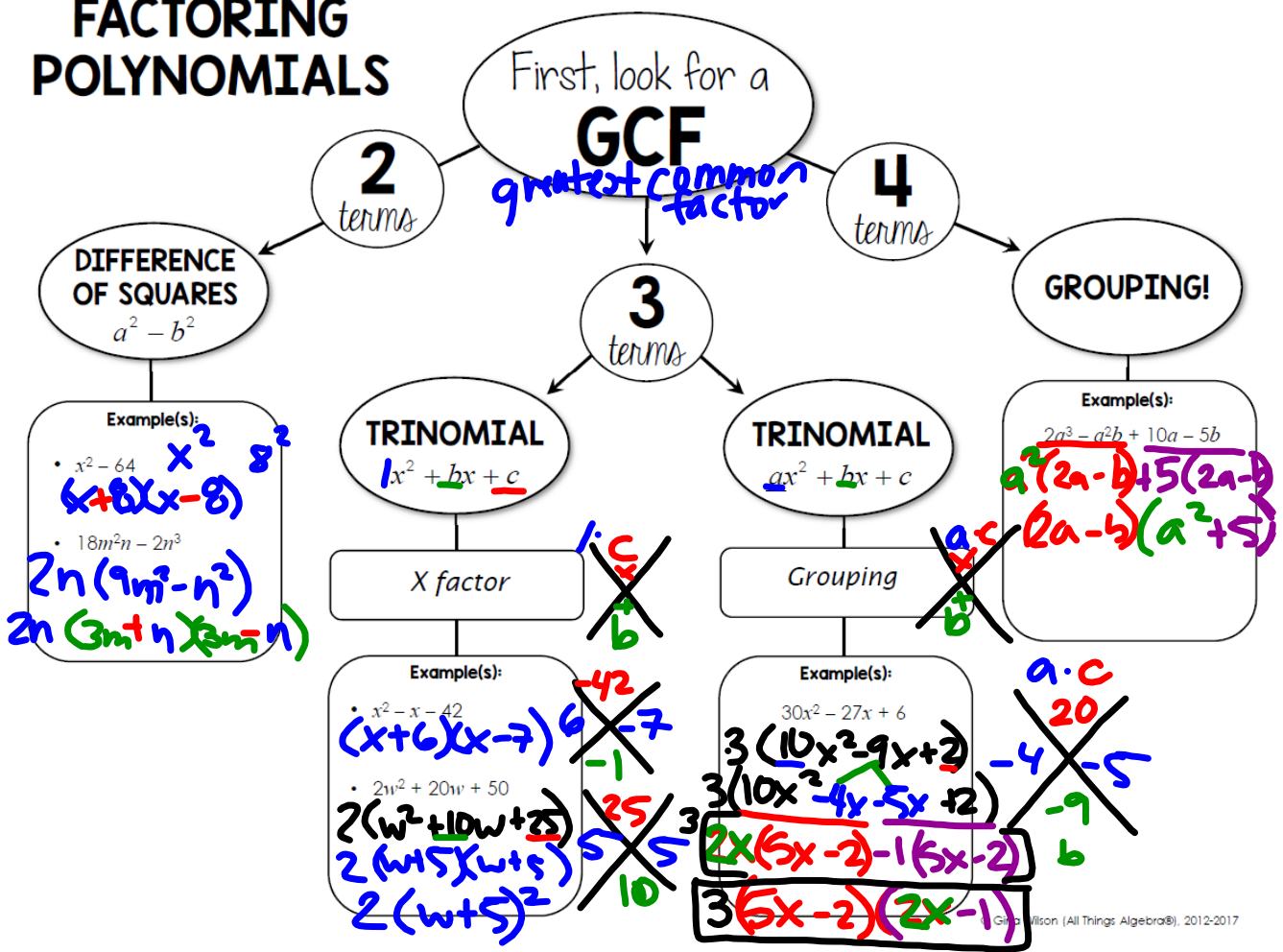


FACTORIZING POLYNOMIALS



$$(3x+1)(x+5)$$

$$3x(x+5) + 1(x+5)$$

$$3x^2 + 15x + x + 5$$

$$3x^2 + 16x + 5$$

$$3x^2 + 16x + 5$$

$$3x^2 + 1x + 15x + 5$$

$$x(3x+1) + 5(3x+1)$$

$$(3x+1)(x+5)$$







$$3x^2 + 15x + 1x + 5$$

$$3x(x+5) + 1(x+5)$$

$$(x+5)(3x+1)$$

Length → Area → Volume

Name _____ Period _____

	Length	Area	Volume
Figure 1	<u>2</u> cm	 2 cm x 2 cm = <u>4</u>	 2cm x 2cm x 2cm = <u>8</u>
Figure 2	<u>4</u> cm	 4 cm x 4 cm = <u>16</u>	 4cm x 4cm x 4cm = <u>64</u>
Figure 3	<u>6</u> cm	 6 cm x 6 cm = <u>36</u>	 6cm x 6cm x 6cm = <u>216</u>
Figure <u>4</u>	<u>8</u>	<u>8</u> x <u>8</u> = <u>64</u>	<u>8</u> ³ <u>8</u> · <u>8</u> · <u>8</u> = <u>512</u>
...Any figure x	<u>2x</u>	<u>(2x)</u> ²	<u>(2x)</u> ³

Length	Area	Volume
0	0	0
1	4	8
2	16	64
3	36	216
4	64	512
...x	<u>(2x)</u> ²	<u>(2x)</u> ³

1st diff (blue arrows), *2nd diff* (red arrows), *3rd diff* (black arrows), *constant* (black arrows), *linear* (blue text), *constant x 2* (red text)

How can you tell from a table what type of function it is?

The number of difference columns will tell you the highest exponent "degree"

Name _____

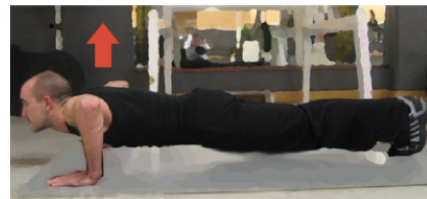
Polynomial Functions | 3.1

Ready, Set, Go!

Ready

Topic: Inequality statements.

Which is greater? For each problem, make a true statement by placing the appropriate inequality symbol between the two expressions.



<http://www.flickr.com/photos/whyld/2282216226/>

If $a > b$, then:

1. $3a$ $>$ $3b$
2. $\frac{h-a}{a+x}$ $<$ $\frac{a-h}{b+x}$
3. $a+x$ $<$ $b+x$

If $x > 10$, then:

4. x^2 $<$ 2^x
5. \sqrt{x} $<$ x^2
6. x^2 $<$ x^3

Set

Topic: Determine the type of function for each problem. Explain how you know.

Set

Topic: Determine the type of function for each problem. Explain how you know.

linear, quad, cubic, log, expo

x x^2 x^3 $2 \cdot 2 \cdot 2 \dots 2^x$

x	f(x)
1	3
2	6
3	12
4	24
5	48

expo.

x	f(x)
1	3
2	6
3	9
4	12
5	15

linear

x	f(x)
1	3
2	9
3	18
4	30
5	45

Quad = x^2

x	f(x)
1	3
2	12
3	30
4	60
5	105

log.

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

cubic

12. $f(x) = x^2 - 9$

13. $g(x) = \log_2(x + 3)$

14. $g(x) = 2(x - 4) + 7$

15. $h(x) = 2 \cdot 3^x + 1$



Go

Topic: Combining functions.

Use the given functions to solve problems 16 - 22.

$f(x) = x - 3$ $g(x) = x + 2$ $h(x) = -x + 1$
 $m(x) = x^2 + 3x + 2$ $n(x) = 2x^3 - x^2 + 2x + 1$ $p(x) = 2x + 1$

16. $f(x) + g(x)$

17. $f(x) - h(x)$

18. $f(x) + p(x)$

19. $g(x) + h(x)$

20. $m(x) + g(x)$

21. $n(x) + m(x)$

22. $m(x) - g(x)$

$$\begin{array}{r} (x^2 + 3x + 2) - (x + 2) \\ \underline{ - x - 2} \\ x^2 + 2x + 0 \end{array}$$

Do your best to determine if the statement is ALWAYS, SOMETIMES, OR NEVER true.

- 23. The sum of two linear functions is another linear function.
- 24. The sum of a linear and a quadratic is a cubic function.
- 25. The sum of a cubic and a quadratic function is a cubic function.



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