

READY, SET, GO!

Name

Period

Date

**READY**

Topic: Distributive Property

**Simplify. First use the distributive property and then combine the like terms.**

Example:

$$3x(4x + 1) + 2(4x + 1) \rightarrow (12x^2 + 3x) + (8x + 2) \rightarrow 12x^2 + [3x + 8x] + 2 \rightarrow \underbrace{12x^2 + 11x + 2}_{\text{Simplified form}}$$

like terms

1.  $2x(5x + 3) + 7(5x + 3)$   
 $10x^2 + 6x + 35x + 21$   
 $10x^2 + 41x + 21$

2.  $8x(x + 1) + 2(x + 1)$

$$8x^2 + 8x + 2x + 2$$

$$8x^2 + 10x + 2$$

3.  $6x(x - 10) - 1(x - 10)$

$$6x^2 - 60x - x + 10$$

$$6x^2 - 61x + 10$$

4.  $1x(3x + 4) + 5(3x + 4)$

$$3x^2 + 4x + 15x + 20$$

$$3x^2 + 19x + 20$$

5.  $3x(8x + 3) - 4(8x + 3)$

$$24x^2 + 9x - 32x - 12$$

$$24x^2 - 23x - 12$$

6.  $5x(2x + 6) + 2(2x + 6)$

$$10x^2 + 30x + 4x + 12$$

$$10x^2 + 34x + 12$$

**SET**

Topic: Multiplying polynomials

**Multiply. Write your answers in standard form.**

7.  $(x - 3)(3x + 4)$

$$3x^2 + 4x - 9x - 12$$

$$3x^2 - 5x - 12$$

8.  $(x - 3)(x^2 + 3x + 1)$

$$x^3 + 3x^2 + x - 3x^2 - 9x - 3 = x^3 - 8x - 3$$

9.  $(3x - 1)(2x - 8)$

$$6x^2 - 24x - 2x + 8$$

$$6x^2 - 26x + 8$$

10.  $(x + 6)(x^2 - 4x + 2)$

$$x^3 - 4x^2 + 2x + 6x^2 - 24x + 12 = x^3 + 2x^2 - 22x + 12$$

11.  $(x + 7)(x^2 - 7x + 49)$

$$x^3 - 7x^2 + 49x + 7x^2 - 49x + 343 = x^3 + 343$$

*Sum of Cubes*

12.  $(x + 6)(x^2 - 4)$

$$x^3 - 4x + 6x^2 - 24$$

$$x^3 + 6x^2 - 4x - 24$$

13.  $(x + 7)^2 = (x + 7)(x + 7)$

$$= x^2 + 7x + 7x + 49$$

$$= x^2 + 14x + 49$$

14.  $(x - 4)^2 = (x - 4)(x - 4)$

$$= x^2 - 4x - 4x + 16$$

$$= x^2 - 8x + 16$$

Need help? Visit [www.rsgsupport.org](http://www.rsgsupport.org)

$(x + a)^0$	1	1
$(x + a)^1$	$x + a$	1 1
$(x + a)^2$	$x^2 + 2ax + a^2$	1 2 1
$(x + a)^3$	$x^3 + 3ax^2 + 3a^2x + a^3$	1 3 3 1
$(x + a)^4$	$x^4 + 4ax^3 + 6a^2x^2 + 3a^3x + a^4$	1 4 6 4 1

1 5 10 10 5 1

Use the table above to write each of the following in standard form.

15H.  $(x + 1)^5$   
 $x^5 + 5x^4 + 10x^3 + 10x^2 + 5x + 1$

16H.  $(x - 5)^3$   
 $1(x^3)(5^0) + 3(x^2)(5^1) + 3(x)(5^2) + 1(x)(5^3)$   
 $x^3 - 15x^2 + 75x - 125$

17H.  $(x - 1)^4 = (x - 1)(x - 1)(x - 1)(x - 1)$   
 $1(x^4)(1^0) + 4(x^3)(1^1) + 6(x^2)(1^2) + 4(x)(1^3) + 1(1^4)$   
 $x^4 - 4x^3 + 6x^2 - 4x + 1$

18H.  $(x + 4)^3 = (x + 4)(x + 4)(x + 4)$   
 $1(x^3)(4^0) + 3(x^2)(4^1) + 3(x)(4^2) + 1(x)(4^3)$   
 $x^3 + 12x^2 + 48x + 64$

19H.  $(x + 2)^4 = (x + 2)(x + 2)(x + 2)(x + 2)$   
 $1(x^4)(2^0) + 4(x^3)(2^1) + 6(x^2)(2^2) + 4(x)(2^3) + 1(x)(2^4)$   
 $x^4 + 8x^3 + 24x^2 + 32x + 16$

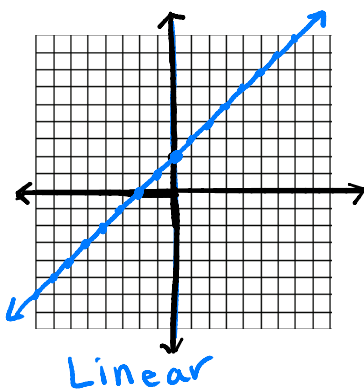
20H.  $(3x + 1)^3 = (3x + 1)(3x + 1)(3x + 1)$   
 $1(3x^3)(1^0) + 3(3x^2)(1^1) + 3(3x)(1^2) + 1(3)(1^3)$   
 $27x^3 + 27x^2 + 9x + 1$

GO

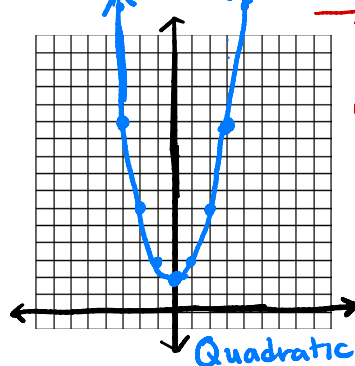
Topic: Graphing different types of functions

Graph the following functions using technology.

21.  $g(x) = x + 2$



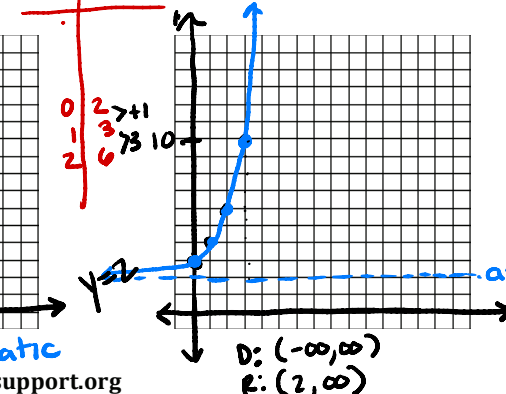
22.  $h(x) = |x^2 + 2$



Need help? Visit [www.rsgsupport.org](http://www.rsgsupport.org)

$2^{-3} = \frac{1}{2^3} = \frac{1}{8}$   $2^2 = \frac{1}{2^{-2}} = \frac{1}{\frac{1}{4}} = 4$   $2^{-1} = \frac{1}{2}$

23.  $f(x) = 2^x + 2$



x	f(x)
-2	2.25
-1	2.5
0	3
1	4
2	6
3	10

$2 = 0$

