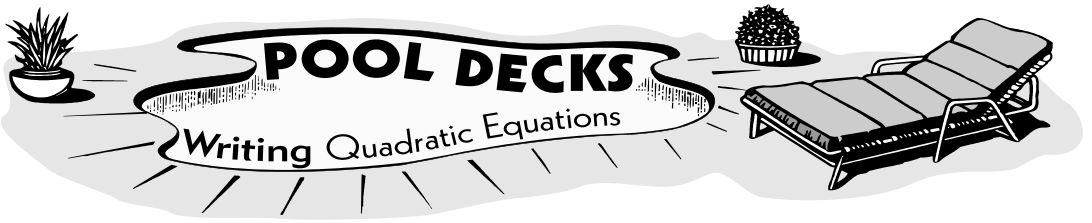
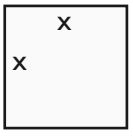
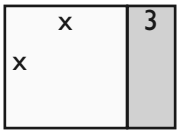


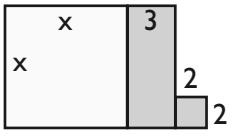
Pool #1



Pool #2



Pool #3



1. a) Draw **Pool #1** on graph paper with a value for *x* that is different than the others' in your group.

   b) Find the area of your pool.
   A = _____

   c) Write the function, A(x), for the area of your group's pool.
   A(x) = _____

   d) Evaluate A(x) for your value of *x* and confirm the result with your group. A(__) = _____

2. a) Draw **Pool #2** on graph paper with a value for *x* that is different than the others' in your group.

   b) Find the total area, pool area and deck area. A = _____ P = _____ D = _____

   c) Write the functions, A(x), P(x) and D(x), for the various areas of your group's pool.
   A(x) = _____ P(x) = _____ D(x) = _____

   d) Evaluate A(x), P(x) and D(x) for your value of *x* and confirm the result with your group.
   A(__) = _____ P(__) = _____ D(__) = _____

3. a) Draw **Pool #3** on graph paper with a value for *x* that is different than the others' in your group.

   b) Find the total area, pool area and deck area. A = _____ P = _____ D = _____

   c) Write the functions, A(x), P(x) and D(x), for the various areas of your group's pool.
   A(x) = _____ P(x) = _____ D(x) = _____

   d) Evaluate A(x), P(x) and D(x) for your value of *x* and confirm the result with your group.
   A(__) = _____ P(__) = _____ D(__) = _____

4. a) For Pools #1-3, complete the charts below (plus any additional points needed).

Pool #1

x	-5	-3	-1	0	1	3	5
A(x)							

Pool #2

x	-5	-3	-1	0	1	3	5
A(x)							

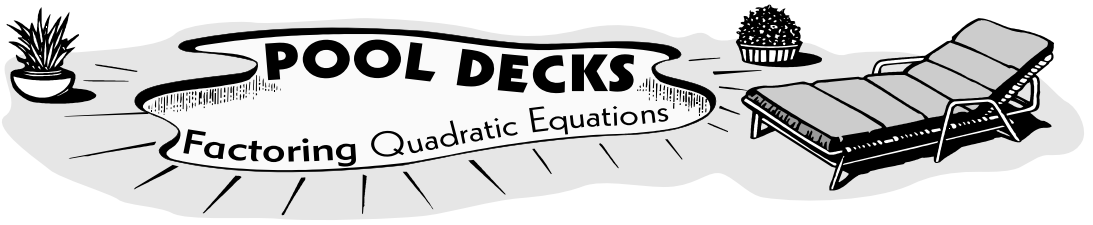
Pool #3

x	-5	-3	-1	0	1	3	5
A(x)							

   b) Graph each function above on one plane.

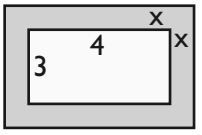
   c) For Pools 2 & 3, graph D(x) on one plane.

   d) What would make graphing the quadratics easier?

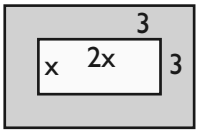


Pool #4

Pool #5



Pool #6



5. a) Draw **Pool #4** on graph paper with a value for *x* that is different than the others' in your group.

   b) Find the total area, pool area and deck area. A = _____ P = _____ D = _____

   c) Write the functions, A(x), P(x) and D(x), for the various areas of your group's pool.
   A(x) = _____ P(x) = _____ D(x) = _____

   d) Evaluate A(x), P(x) and D(x) for your value of *x* and confirm the result with your group.
   A(__) = _____ P(__) = _____ D(__) = _____

   e) Find the vertex and y-intercept. Also, find the roots by factoring. f) Graph each function.

6. a) Draw **Pool #5** on graph paper with a value for *x* that is different than the others' in your group.

   b) Find the total area, pool area and deck area. A = _____ P = _____ D = _____

   c) Write the functions, A(x), P(x) and D(x), for the various areas of your group's pool.
   A(x) = _____ P(x) = _____ D(x) = _____

   d) Evaluate A(x), P(x) and D(x) for your value of *x* and confirm the result with your group.
   A(__) = _____ P(__) = _____ D(__) = _____

   e) Find the vertex and y-intercept. Also, find the roots by factoring. f) Graph each function.

7. a) Draw **Pool #6** on graph paper with a value for *x* that is different than the others' in your group.

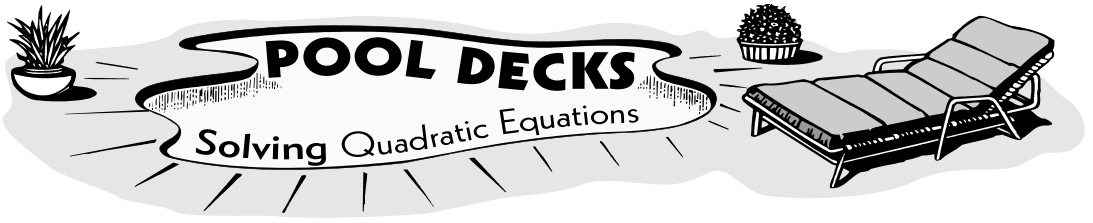
   b) Find the total area, pool area and deck area. A = _____ P = _____ D = _____

   c) Write the functions, A(x), P(x) and D(x), for the various areas of your group's pool.
   A(x) = _____ P(x) = _____ D(x) = _____

   d) Evaluate A(x), P(x) and D(x) for your value of *x* and confirm the result with your group.
   A(__) = _____ P(__) = _____ D(__) = _____

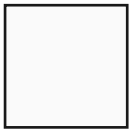
   e) Find the vertex and y-intercept. Also, find the roots by factoring. f) Graph each function.

STUDENT HANDOUT

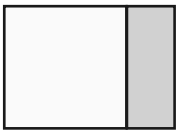


Below are diagrams representing the pools that you have studied thus far. The equations that you generated for each pool still apply. For each of the following, find the value of x that will yield the desired area given. Solve by both factoring and by the quadratic formula. Then draw the dimensions of the diagram to confirm your result.

#1) A(x) = 16

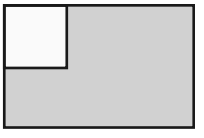


#2) A(x) = 40

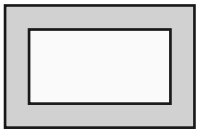


#3) A(x) = 8

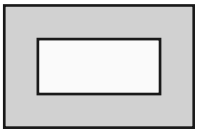
#4) A(x) = 48

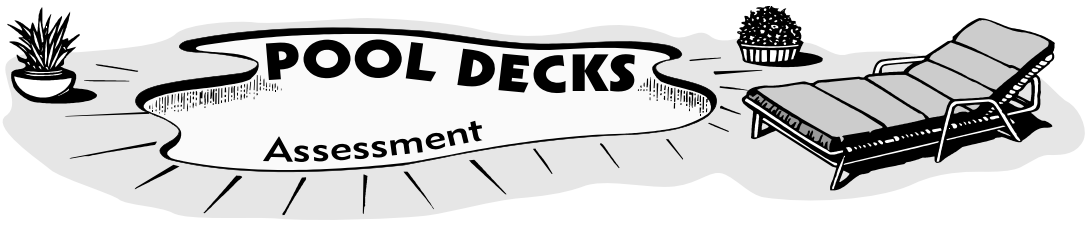


#5) A(x) = 182



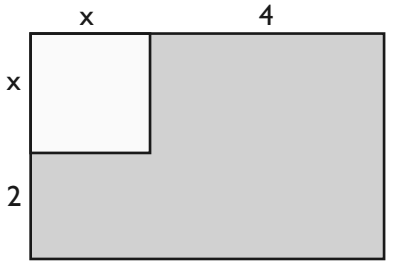
#6) A(x) = 140





For each equation, calculate the vertex, the roots (by factoring and the quadratic formula) and two other points; then graph (on a separate sheet of paper).

	a) the vertex	b) the roots by factoring	c) the roots by the quadratic formula	d) two other points
1) $y = x^2$	(,)	(,)(,)	(,)(,)	(,)(,)
2) $y = x^2 + 4x$	(,)	(,)(,)	(,)(,)	(,)(,)
3) $y = x^2 + 8x + 12$	(,)	(,)(,)	(,)(,)	(,)(,)
4) $y = -3x^2 - 12x + 15$	(,)	(,)(,)	(,)(,)	(,)(,)



Pool #7

For questions 5 - 8, use **Pool #7.**

5. Write equations for the area of the pool, the deck and the total area.

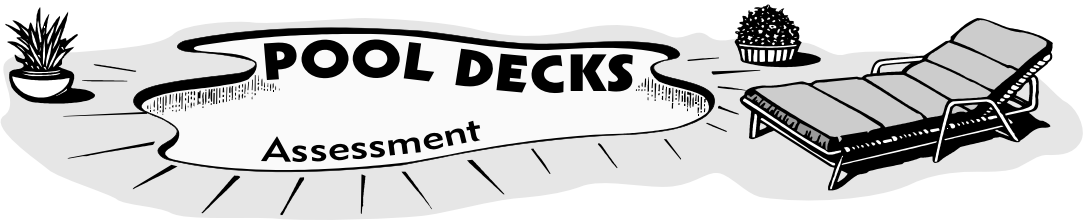
   P(x) = _____

   D(x) = _____

   A(x) = _____

6. For the area of the pool, P(x), find the vertex and then graph.

7. For the area of the deck, D(x), find the slope, the y-intercept, three other points and then graph.



8. For the total area of the pool and deck, A(x), find:
   a) the vertex
   b) the y-intercept
   c) the x-intercepts by factoring
   d) the x-intercepts by the quadratic formula
   e) and graph
   f) and solve A(x) = 35

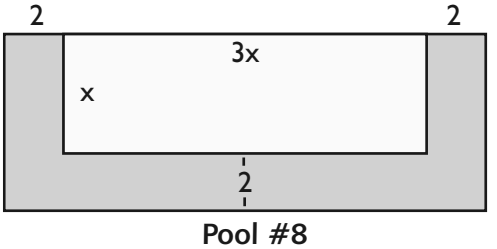
For questions 9 - 12, use **Pool #8.**

9. Write equations for the area of the pool, the deck and the total area.

   P(x) = _____

   D(x) = _____

   A(x) = _____



Pool #8

10. For the area of the pool, P(x), find the vertex and then graph.

11. For the area of the deck, D(x), find the slope, the y-intercept, three other points and then graph.

12. For the total area of the pool and deck, A(x), find:
   a) the vertex
   b) the y-intercept
   c) the x-intercepts by factoring
   d) the x-intercepts by the quadratic formula
   e) and graph
   f) and solve A(x) = 133