

**Tuesday:**

1. Farmer John's neighbor, Old McDonald, has a cylindrical storage tank with a height of 12ft. and radius of 3 ft. He has a machine that can dump the wheat in at  $6ft^3/\text{min}$ . How long does it take to fill his tank? Give your answer both in terms of  $\pi$ , and an estimated answer using 3.14 for  $\pi$ . (hint: find the volume of the tank first!)

2. The local soccer league provided jerseys for its teams. The total cost of an order of jerseys from a company consists of the cost of each shirt plus a one-time design fee. To help customers estimate the total cost of an order, the company provided the following information:
- 20 shirts cost \$220.00  
200 shirts cost \$1210.00

Write an equation for each of the cost examples and use your equations to answer the following questions: What is the cost of each shirt, not including the one-time design fee? What is the cost of the one-time design fee? Explain how you found your answers.

3. Given a right triangle, which set of numbers **cannot** be the lengths of the sides?  
Explain why you chose your answer.

A. 6, 8, 10

B. 7, 24, 25

C. 8, 15, 17

D. 10, 12, 14

4. Use the given numbers only once to form 2 true equations. You don't have to use all of the numbers given.

3, 5, 9, 25, 27, 125

$$\sqrt{\quad} = \underline{\quad}$$

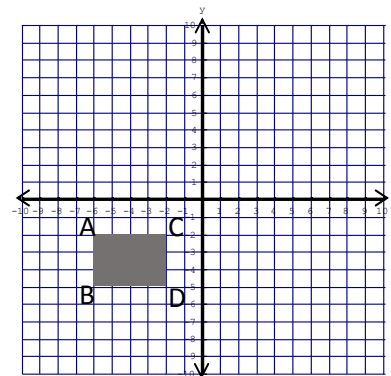
$$\sqrt{\quad} = \underline{\quad}$$

$$\sqrt[3]{\quad} = \underline{\quad}$$

$$\sqrt[3]{\quad} = \underline{\quad}$$

## Wednesday

1. Rotate the given figure  $180^\circ$  about the origin.  
What are the coordinates of A'B'C'D'?  
What is the relationship of the 2 sets of coordinates?



2. When Jasper was doing his homework, he came across an equation that said  $4x + 10 = ax + b$ . He found many sets of numbers for  $a$ ,  $b$ ,  $x$  that made the equation true. However, he only found one value for 'a' and one value for 'b' to make the solution set for  $x$  to be all real numbers. What did he find for the values of  $a$  and  $b$  to have infinite solutions for  $x$ ?

3. Simplify:

a.  $3x^2(4x^5)$

b.  $x^3y^4z \cdot xy^2z$

c.  $(3a^2bc^3)^3$

4. Solve:

a.  $5x - 3 = 2x + 8$

b.  $\frac{x}{8} + 12 = 6$

c.  $\frac{4}{x} = \frac{6}{12}$

## Key

### Tuesday:

1.  $18\pi$  min.  $\approx 56.52$  minutes.
2. Let  $c$  = the cost per shirt & let  $f$  = the one-time fee  
My equations are  $20c + f = 220$  and  $200c + f = 1210$ . I solved this system by the elimination method by multiplying the first equation through by  $-1$  and then adding it to the second equation. This allowed me to first solve for the cost per shirt which turned out to be \$5.50. I then went back to the first equation to solve for the design fee ( $f$ ), which turned out to be \$110. I checked my solution of  $(5.50, 110)$  into each equation to make sure it made both statements true.
3. D If the triangle is a right triangle then  $a^2 + b^2 = c^2$ , yet here  $10^2 + 12^2 \neq 14^2$  because  $244 \neq 196$ , therefore the triangle cannot be a right triangle.
4.  $\sqrt{\quad} = \underline{\quad}$        $9 = 3$  or  $25 = 5$   
 $\sqrt[3]{\quad} = \underline{\quad}$        $125 = 5$  or  $27 = 3$

### Wednesday:

1.  $A' = (6, 2)$      $B' = (6, 5)$        $C' = (2, 2)$        $D' = (2, 5)$   
A  $180^\circ$  turn makes the coordinate points opposites.
2.  $a = 4$  and  $b = 10$  to make a true statement which gives a solution of all real numbers.