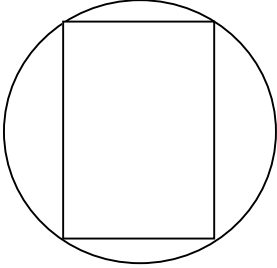


Team Brainstorming 2010

1. A rectangle is surrounded by a circle as shown. If the area of the circle is 50π square units and the longer side of the rectangle measures $2\sqrt{34}$ units, find the exact area of the rectangle.



2. Find the y -intercept of the function $f(x) = \left(x - \frac{5 + \sqrt{2}}{3}\right)\left(x - \frac{5 - \sqrt{2}}{3}\right)$.
3. The line L contains the point $(-1, 7)$ and is perpendicular to the line $3x - 5y = 6$. Find the y -intercept of L .
4. Suppose $\log_5 a = \frac{3}{10}$ and $\log_5 b = \frac{7}{10}$, find the exact value of $\log_5 \left(\frac{a^4}{b}\right)$.
5. College of Charleston basketball player Andrew Goudelock sinks a three-pointer during a game. The height of the ball above the floor t seconds after it leaves his hands is $-16t^2 + 40t + 10$ feet. If the basket is 10 feet above the floor, how many seconds will it take for the ball to get to the hoop?

1. $16\sqrt{34}$ units
2. $23/9$
3. $16/3$
4. $1/2$
5. $5/2$ sec.