

PRACTICE EXAM 1 - MATH 140

DATE: Friday, January 28

INSTRUCTOR: George Voutsadakis

Read each problem very carefully before starting to solve it. Each question is worth 3 points. It is necessary to show your work. Correct answers without explanations are worth 0 points.

GOOD LUCK!!

1. Find the equation of the perpendicular bisector of the straight line segment with end points $(1, 1)$ and $(5, -7)$.
2. Find the center and the radius of the circle represented by the equation $x^2 + y^2 + x + y - \frac{1}{2} = 0$.
3. Patrice, by himself, can paint four rooms in 10 hours. If he hires April to help, they can do the same job together in 6 hours. If he lets April work alone, how long will it take her to paint four rooms?
4. Study (find the vertex, the opening direction, the intercepts and then roughly sketch the graph of) the function $f(x) = 3x^2 - 8x + 2$.
5. (a) Find the equation $y = f(x)$ of the parabola with vertex $V = (3, -25)$ going through the point $(7, -9)$.
(b) Solve the inequality $f(x) \geq 0$.
6. A farmer with 4000 meters of fencing wants to enclose a rectangular plot that borders on a river. If the farmer does not fence the side along the river, what is the largest area that can be enclosed?