Quiz 1 Version R
Fri Sep 28, 2012

SCORE: 22½ / 25 POINTS

1. NO CALCULATORS ALLOWED
2. SHOW PROPER TO WORK TO RECEIVE FULL CREDIT

Find the focus of the parabola with equation $(y-3)^2 = -10(x+1)$. SCORE: 1 / 3 POINTS

$y^2 = 4px$

$4p = -10$

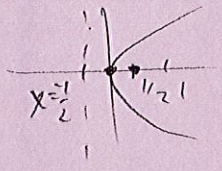
$p = \frac{-10}{4}$

$\boxed{p = -\frac{5}{2}}$ (1)

Find the standard form of the equations of the parabolas with the following characteristics. SCORE: 5 / 5 POINTS

[a] focus $(\frac{1}{2}, 0)$ and vertex $(0, 0)$

f (p, 0)

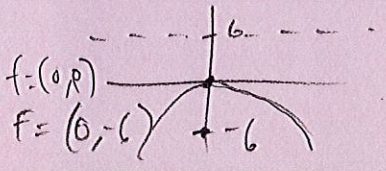


$y^2 = 4px$

$p = \frac{1}{2}$

$\boxed{y^2 = 2x}$ (1) (1)

[b] directrix $y = 6$ and vertex $(0, 0)$



$x^2 = 4py$

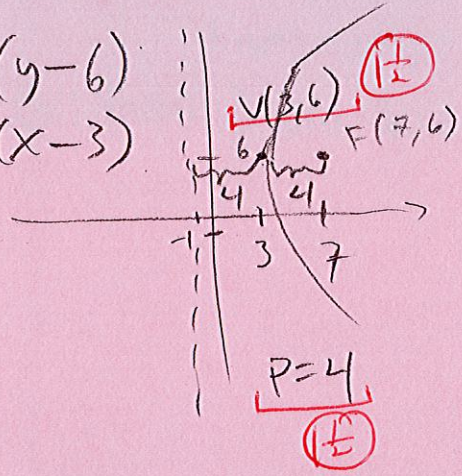
$p = -6$

$\boxed{x^2 = -24y}$ (1) (1) (1)

Find the standard form of the equation of the parabola with focus $(7, 6)$ and directrix $x = -1$. SCORE: 6 / 6 POINTS

$y \Rightarrow (y-6)$

$x \Rightarrow (x-3)$



(½)

$y^2 = 4px$

$y^2 = 16x$

$\boxed{(y-6)^2 = 16(x-3)}$ (1) (1) (1)

Find the center and radius of the circle with equation $4x^2+4y^2+12x-20y-2=0$.

SCORE: 5 / 5 POINTS

$\frac{4x^2}{4}+\frac{4y^2}{4}+\frac{12x}{4}-\frac{20y}{4}-\frac{2}{4}=0$

$x^2+3x+2.25+y^2-5y+6.25=\frac{2}{4}+2.25+6.25$

$(x+1.5)^2+(y-2.5)^2=9$

$1.5^2=1.5\times1.5=75+150=2.25$

$2.5^2=2.5\times2.5=125+500=6.25$

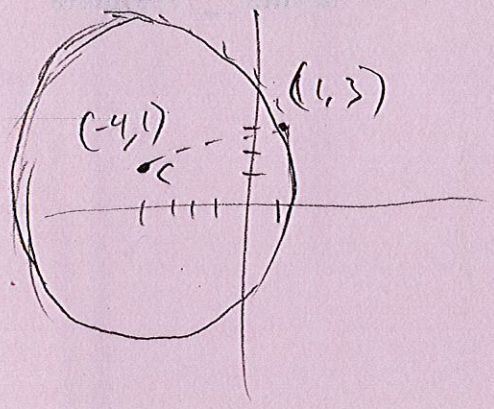
Center $=(-1.5, 2.5)$

Radius $=3$

$r=\sqrt{9}=\pm 3$

Write the standard form of the equation of the circle with center $(-4, 1)$ and solution point $(1, 3)$ (ie. the point lies on the circle).

SCORE: 3 / 3 POINTS



$r=\sqrt{(1+4)^2+(3-1)^2}$

$=\sqrt{25+4}$

$=\sqrt{29}$

$x^2+y^2=r^2$

$(x+4)^2+(y-1)^2=29$

Write the definition of a parabola. **Use complete sentences and proper English as shown in lecture.**

SCORE: 2½ / 3 POINTS

The locus of points in the plane equidistant to a fixed point (Focus) and a fixed line (directrix).