Math 002 P1 **Name:** Solutions

Quiz # 9

November 18, 2014 No electronic devices or interpersonal communication allowed. Show work to get credit.

(1) What is the distance between the points $\left(\frac{1}{2}, -\frac{3}{4}\right)$ and $\left(\frac{7}{4}, \frac{1}{2}\right)$?

$$\sqrt{\left(\tfrac{1}{2}-\tfrac{7}{4}\right)^2+\left(-\tfrac{3}{4}-\tfrac{1}{2}\right)^2}$$

$$=\sqrt{\left(-\tfrac{5}{4}\right)^2+\left(-\tfrac{5}{4}\right)^2}$$

$$=\sqrt{\tfrac{25}{16}+\tfrac{25}{16}}=\sqrt{2\cdot\tfrac{25}{16}}=\boxed{\tfrac{5}{4}\sqrt{2}}$$

(2) What is the midpoint of the line segment joining $\left(\frac{1}{2}, -\frac{3}{4}\right)$ and $\left(\frac{7}{4}, \frac{1}{2}\right)$?

$$\left(\tfrac{1}{2}\left(\tfrac{1}{2}+\tfrac{7}{4}\right),\ \tfrac{1}{2}\left(-\tfrac{3}{4}+\tfrac{1}{2}\right)\right)$$

$$=\boxed{\left(\tfrac{9}{8},\ -\tfrac{1}{8}\right)}$$

(3) Find the x- and y-intercepts of $y+2=|x-3|$. (Clearly label which is which!)

x-intercept: set $y=0$

$2=|x-3|$

$\pm 2 = x-3$

$3\pm 2 = x$

$x=5$ or $x=1$

x-intercepts: $(1,0)$ and $(5,0)$

y-intercept: set $x=0$

$y+2=|0-3|$

$y+2=3$

$y=1$

y-intercept: $(0,1)$

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

x	y
-5	-2
0	-1
3	0
4	1
3	2
0	3
-5	4