Test 2 Review

Basic Information

Where: CASA Testing Center (222 Garrison Gym)
Time: 50 minutes
Number of questions: 13
12 Multiple Choice Questions (total of 90 points)
1 Free Response Questions (total of 10 points)

For the free response part, please show your work neatly. Do not skip steps.

Do not forget to reserve a seat for Test – 2.
Do not forget to go to CASA for fingerprint/picture process before your test date.

Remember the make-up policy: NO MAKE UPS!

1. $4x - 9 \geq 9x + 6$

$-9x \quad -9x$

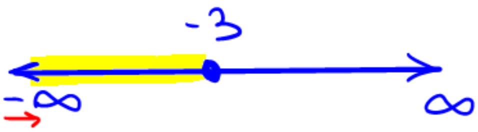
$-5x - 9 \geq 6$

$+9 \quad +9$

flip

$\frac{-5x}{-5} \geq \frac{15}{-5}$

$x \leq -3$



$\boxed{(-\infty, -3]}$

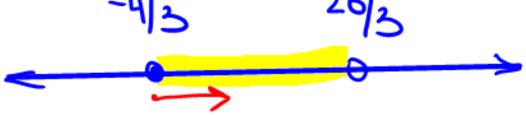
2. $5 \cdot -2 \leq \cancel{5}\frac{1}{\cancel{5}}(3x - 6) < 4 \cdot 5$

$-10 \leq 3x - 6 < 20$

$+6 \quad +6 \quad +6$

$\frac{-4}{3} \leq \frac{3x}{3} < \frac{26}{3}$

$-4/3 \leq x < 26/3$



$\boxed{[-4/3, 26/3)}$

$-\frac{4}{3} = -1\frac{1}{3}$ $\quad$ $\frac{26}{3} = 8\frac{2}{3}$

$4 \div 3 = 1\text{R}1$ $\quad$ $26 \div 3 = 8\text{R}2$

Test 2 Review

$|x-7| = -12$

No solution

1. $|x| = A$ A is positive

$x = A \quad x = -A$

2. $|x| = A$ A is negative

No solution

3. $|x| = 0$

$x = 0$

3. $|x - 7| = 12$

$x - 7 = 12$
$+7 \quad +7$

$\boxed{x = 19}$

$x - 7 = -12$
$+7 \quad +7$

$\boxed{x = -5}$

4. $|2x + 3| = 11$

$2x + 3 = 11$
$-3 \quad -3$

$\frac{2x}{2} = \frac{8}{2}$

$\boxed{x = 4}$

$2x + 3 = -11$
$-3 \quad -3$

$\frac{2x}{2} = \frac{-14}{2}$

$\boxed{x = -7}$

5. Find the midpoint of the line segment joining the points (2, 4) and (5 , -8).

$x_1\ y_1 \qquad x_2\ y_2$

$$\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$$

$$\left(\frac{2+5}{2}, \frac{4+(-8)}{2}\right)$$

$\boxed{(3.5, -2)}$ $\quad (3\tfrac{1}{2}, -2)$

$$d=\sqrt{(y_2-y_1)^2+(x_2-x_1)^2}$$

6. Use the distance formula to find the distance between the two points (-5 , -2) and (-8 , -4).

$x_1 \; y_1$ $x_2 \; y_2$

$$d=\sqrt{(-4-(-2))^2+(-8-(-5))^2}$$

$$=\sqrt{(-4+2)^2+(-8+5)^2}=\sqrt{(-2)^2+(-3)^2}$$

$$=\sqrt{4+9}=\boxed{\sqrt{13}}$$

$x_1 \; y_1$ $x_2 \; y_2$

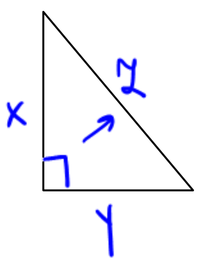
7. What is the slope of the line through the points (8 , -2) and (-4 , -6)?

$$m=\frac{y_2-y_1}{x_2-x_1}$$

$$m=\frac{-6-(-2)}{-4-8}=\frac{-6+2}{-12}=\frac{-4}{-12}=\boxed{\frac{1}{3}}$$

$$x^2+y^2=z^2$$

8. Given that x = 4 and z = 8 in the right triangle below, use the Pythagorean Theorem to find the missing side y.



$$4^2+y^2=8^2$$

$$16+y^2=64$$

$$-16 \qquad -16$$

$$\sqrt{y^2}=\sqrt{48}$$

$$y=\sqrt{48}=\sqrt{16\cdot 3}$$

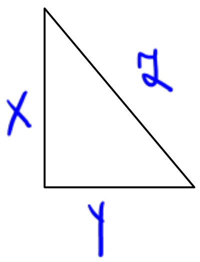
$$=\sqrt{16}\cdot\sqrt{3}$$

$$\boxed{y=4\sqrt{3}}$$

Test 2 Review

$a^2+b^2=c^2$

9. Given that x = 6 and z = 9 in the right triangle below, use the Pythagorean Theorem to find the missing side y.



$$x^2+y^2=z^2$$

$$6^2+y^2=9^2$$

$$36+y^2=81$$

$$-36 \qquad -36$$

$$\sqrt{y^2}=\sqrt{45}$$

$$y=\sqrt{45}=\sqrt{9\cdot 5}=\sqrt{9}\cdot\sqrt{5}=\boxed{3\sqrt{5}}$$

10. State the coordinates of the x and y -intercepts of the following lines:

a. $-4x-5y=2$

x-int.: set $y=0$

$$-4x\cancel{-5(0)}=2$$

$$\frac{-4x}{-4}=\frac{2}{-4}$$

$$x=-1/2$$

$$\boxed{(-1/2,0)}$$

y-int: set $x=0$

$$\cancel{-4(0)}-5y=2$$

$$\frac{-5y}{-5}=\frac{2}{-5}$$

$$y=-2/5$$

$$\boxed{(0,-2/5)}$$

b. $5x+2y=3$

x-int: set $y=0$

$$5x\cancel{+2(0)}=3$$

$$\frac{5x}{5}=\frac{3}{5}$$

$$\boxed{x=3/5 \quad \left(\tfrac{3}{5},0\right)}$$

y-int.: set $x=0$

$$\cancel{5(0)}+2y=3$$

$$\frac{2y}{2}=\frac{3}{2}$$

$$\boxed{y=3/2 \quad \left(0,\tfrac{3}{2}\right)}$$

Distance $\left(\overset{x_1}{\tfrac{1}{2}}, \overset{y_1}{-4}\right)$ & $\left(\overset{x_2}{-3}, \overset{y_2}{\tfrac{1}{2}}\right)$

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$d = \sqrt{\left(-3 - \frac{1}{2}\right)^2 + \left(\frac{1}{2} - (-4)\right)^2}$$

$$= \sqrt{\left(\frac{-7}{2}\right)^2 + \left(\frac{9}{2}\right)^2}$$

$$= \sqrt{\frac{49}{4} + \frac{81}{4}}$$

$$= \sqrt{\frac{130}{4}} = \frac{\sqrt{130}}{\sqrt{4}} = \boxed{\frac{\sqrt{130}}{2}}$$

$$\frac{-3}{1} - \frac{1}{2} = -\frac{3 \cdot 2}{1 \cdot 2} - \frac{1}{2}$$

$$= \frac{-6 - 1}{2}$$

$$= \frac{-7}{2}$$

$$\frac{1}{2} + \frac{4 \cdot 2}{1 \cdot 2} = \frac{1 + 8}{2}$$

$$= \frac{9}{2}$$