East Los Angeles College

Department of Mathematics

Math 125

Test 1

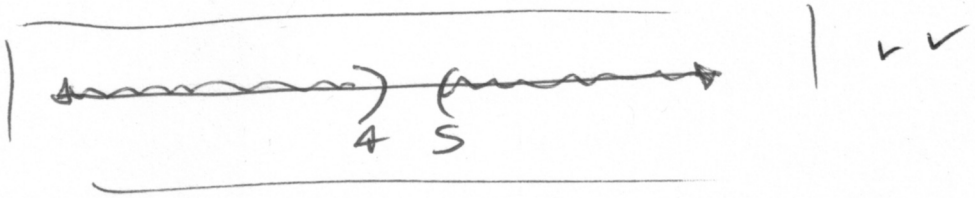
~~21~~ ✓

35 ✓

Solve and graph the following compound inequalities.

1) $2x-1<7$ or $-x+6<1$

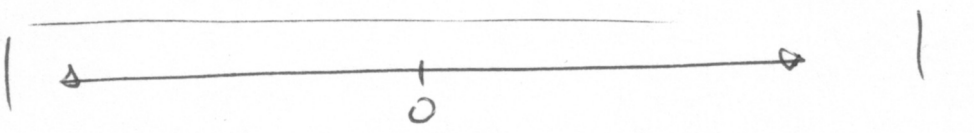
$x < 4$ or $x > 5$ ✓ ✓



✓ ✓

2) $-x+6<-18$ and $3x<-9$

$x > 24$ and $x < -3$ ✓ ✓



✓

Solve the following absolute value equations and write your answers in set notation.

3) $|x-5|+4=11$

$\{12, -2\}$ ✓ ✓

✓

9

4) $|3x-2|+4=-11$

{8, -12}

No Solution ✓ ✓

5) $3|x+2|-9=21$

{8, -12} ✓ ✓

6) $-2|x|+6=-18$ {12, -12} ✓ ✓

6
~~5~~ ✓

7) $\left|\frac{x-4}{3}\right| = \frac{1}{2}$

$\{\frac{11}{2}, \frac{5}{2}\}$ ✓✓

8) $|x-8|-6=10$

$\{24, -8\}$ ✓✓

Solve, graph, and write in interval notation, for the following absolute value inequalities.

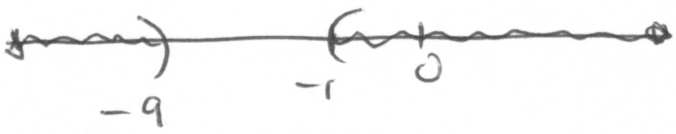
9) $2|x-8| \leq 6$

$5 \leq x \leq 11$ ✓ ✓

✓ ✓ ✓ 8 ✓

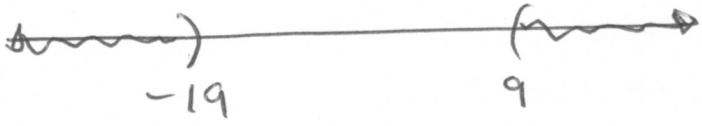
10) $-3|x+5|<-12$

$x > -1$ or $x < -9$



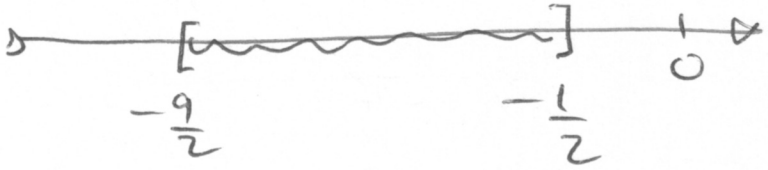
11) $|x+5|+8>22$

$x > 9$ or $x < -19$



12) $4|2x+5|-3 \leq 13$

$-\frac{9}{2} \leq x \leq -\frac{1}{2}$



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math 125 Test 1

(1) $2x - 1 < 7$ or $-x + 6 < 1$

$+1 \quad +1 \qquad\qquad -6 \quad -6$

$\frac{2x}{2} < \frac{8}{2} \qquad\qquad \frac{-x}{-1} < \frac{-5}{-1}$

$x < 4$ (or) $x > 5$

(2) $-x + 6 < -18$ and $3x < -9$

$-6 \quad -6 \qquad\qquad \frac{3x}{3} < \frac{-9}{3}$

$\frac{-x}{-1} < \frac{-24}{-1}$ $\qquad x < -3$

(and)

$x > 24$

(3) $|x - 5| + 4 = 11$

$-4 \quad -4$

$|x - 5| = 7$

$x - 5 = 7$	or	$x - 5 = -7$
$+5 \quad +5$		$+5 \quad +5$
$x = 12$		$x = -2$

(4) $|3x-2|+4 = -11$

$-4 \quad -4$

$|3x-2| = -15$; No Solution

(5) $3|x+2|-9 = 21$

$+9 \quad +9$

$\frac{3|x+2|}{3} = \frac{30}{3}$

$|x+2| = 10$

$x+2 = 10$ | $x+2 = -10$

$-2 \quad -2$ | $-2 \quad -2$

$x = 8$ | $x = -12$

(6) $-2|x|+6 = -18$

$-6 \quad -6$

$\frac{-2|x|}{-2} = \frac{-24}{-2}$; $|x| = 12$

$x = 12$ | $x = -12$

(7) $\left|\frac{x-4}{3}\right| = \frac{1}{2}$

$\frac{x-4}{3} = \frac{1}{2}$ or $\frac{x-4}{3} = -\frac{1}{2}$

$2(x-4) = 3$ | $2(x-4) = -3$

$2x - 8 = 3$ | $2x - 8 = -3$

$+8 \quad +8$ | $+8 \quad +8$

$\frac{2x}{2} = \frac{11}{2}$ | $\frac{2x}{2} = \frac{5}{2}$

$x = \frac{11}{2}$ | $x = 5/2$

(8) $|x-8|-6=10$

$+6 \quad +6$

$|x-8|=16$

$x-8=16$	$x-8=-16$
$+8 \quad +8$	$+8 \quad +8$
$x=24$	$x=-8$

(9) $\frac{2|x-8|}{2} \leq \frac{6}{2}$

$|x-8| \leq 3$

$-3 \leq x-8 \leq 3$

$+8 \quad +8 \quad +8$

$5 \leq x \leq 11$

(10) $\frac{-3|x+5|}{-3} < \frac{-12}{-3}$

$|x+5| > 4$

$x+5 > 4$ or $x+5 < -4$

$-5 \quad -5 \quad -5 \quad -5$

$x > -1$ or $x < -9$

(11) $|x+5| + 8 > 22$

$-8 \quad -8$

$|x+5| > 14$

$x+5 > 14$ or $x+5 < -14$

$-5 \quad -5 \qquad -5 \quad -5$

$x > 9$ or $x < -19$

(12) $4|2x+5| - 3 \leq 13$

$+3 \quad +3$

$\frac{4|2x+5|}{4} \leq \frac{16}{4}$

$|2x+5| \leq 4$

$-4 \leq 2x+5 \leq 4$

$-5 \qquad -5 \quad -5$

$\frac{-9}{2} \leq \frac{2x}{2} \leq \frac{-1}{2}$; $-\frac{9}{2} \leq x \leq -\frac{1}{2}$