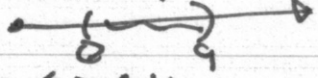
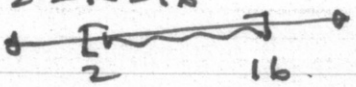
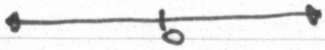
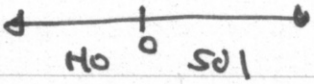
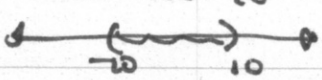
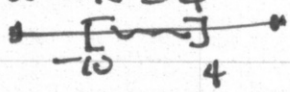
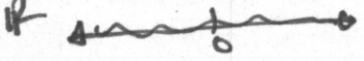
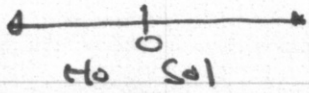
1	$\{0, 3, 4, \ldots 10, 9, 6, \ldots 9\}$	17	$0 < x < 9$ 
2	$\varnothing$	18	$2 \leq x \leq 16$ 
3	$\{1, 3, 5, 7, 9, 0, 2\}$	19	$(-\infty, \infty)$
4	$\{1, 3, 5\}$	20	$[-10, 4]$
5	$x > 3$ or $x > -4$ 	21	$(-\infty, \infty)$
6	$x \leq -12$ and $x \geq 7$ 	22	none
7	$\{-7, -12\}$	23	$(0, 9)$
8	$\{6, -6\}$	24	$[7, 16]$
9	$\{7, -3\}$	25	4
10	$\{8, 2\}$	26	$6x$
11	$\{3, -13\}$	27	$\frac{7}{x^4}$
12		28	$5x^2y^5$
13	$-10 < x < 10$ 	29	-4
14	$-10 \leq x \leq 4$ 	30	$5x$
15		31	$\frac{x^4}{2}$
16		32	$3a^2b^5$

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East Los Angeles College

Department of Mathematics

Math 125

Test 1

Let $A = \{0,2,4,6,8,10\}$ $B = \{1,3,5,7,9\}$ $C = \{a, b, c, d, e, f, g\}$

$D = \{0,1,2,3,4,5\}$

Determine the following operations with the indicated sets.

1) $A \cup C$

2) $A \cap C$

3) $B \cup D$

4) $B \cap D$

Solve and graph the following compound inequalities.

5) $2x - 8 > -2$ or $-x + 7 < 11$

6) $2x \leq -24$ and $3x - 4 \geq x + 10$

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

7) $|x + 7| = 5$

8) $2|x| + 5 = 17$

9) $4|x - 2| - 8 = 12$

10) $-3|x - 5| = -9$

11) $|x + 5| - 2 = 6$

12) $-3|x| - 6 = 12$

Solve and graph the following linear inequalities.

13) $2|x| - 6 < 14$

14) $-4|x + 3| \geq -28$

15) $-3|x| - 9 < 12$

16) $2|x + 1| + 17 \leq 5$

17) $-6 < 2x - 6 < 12$

18) $8 \leq x + 6 \leq 22$

Write your solutions in **interval notation.**

19) Problem 13

20) Problem 14

21) Problem 15

22) Problem 16

23) Problem 17

24) Problem 18

Evaluate the following radicals.

25) $\sqrt{16}$

26) $\sqrt{36x^2}$

27) $\sqrt{\frac{49}{x^8}}$

28) $\sqrt{25x^4y^{10}}$

29) $\sqrt[3]{-64}$

30) $\sqrt[3]{125x^3}$

31) $\sqrt[3]{\frac{x^{12}}{8}}$

32) $\sqrt[3]{27a^6b^{15}}$

math 125 Test 1

(1) $A \cup C = \{0, 2, 4, 6, 8, 10, a, b, c, d, e, f, g\}$

(2) $A \cap C = \emptyset$

(3) $B \cup D = \{1, 3, 5, 7, 9, 0, 1, 2, 3, 4, 8\}$

$= \{1, 3, 5, 7, 9, 0, 2\}$

(4) $B \cap D = \{1, 3, 5\}$

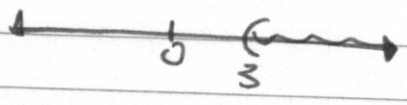
(5) $2x - 8 > -2$ or $-x + 7 < 11$

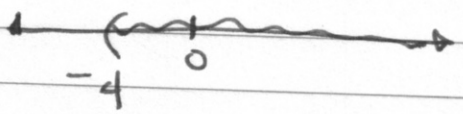
$+8 \quad +8 \qquad\qquad -7 \quad -7$

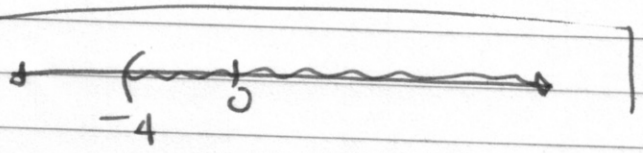
$\frac{2x}{2} > \frac{6}{2}$ or $-x < 4$

$x > 3$ (or) $-1 \cdot x < 4 \cdot -1$

$x > -4$







(6) $2x \leq -24$ and $3x - 4 \geq x + 10$

$\frac{2x}{2} \leq \frac{-24}{2}$ $\qquad$ $3x - 4 \geq x + 10$

$-x \quad -x$

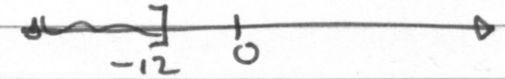
$x \leq -12$ $\qquad$ $2x - 4 \geq 10$

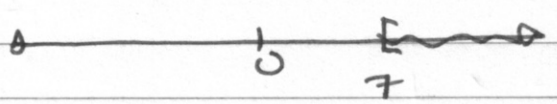
$+4 \quad +4$

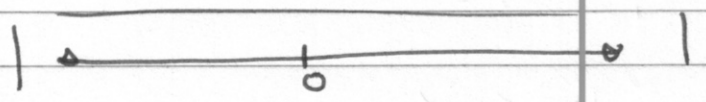
$\frac{2x}{2} \geq \frac{14}{2}$

and

$x \geq 7$







(7) $|x + 7| = 5$

$x + 7 = 5$ or $x + 7 = -5$

$-7 \quad -7$ $\qquad$ $-7 \quad -7$

$x = -2$ $\qquad$ $x = -12$

$\{-2, -12\}$

(8) $2|x| + 5 = 17$
$-5 \quad -5$

$\frac{2|x|}{2} = \frac{12}{2}$

$|x| = 6$

$x = 6$ or $x = -6$

$\{6, -6\}$

(9) $4|x-2| - 8 = 12$
$+8 \quad +8$

$\frac{4|x-2|}{4} = \frac{20}{4}$

$|x-2| = 5$

$x - 2 = 5$ or $x - 2 = -5$
$+2 \quad +2 \qquad +2 \quad +2$

$x = 7 \qquad x = -3$

$\{7, -3\}$

(10) $\frac{-3|x-5|}{-3} = \frac{-9}{-3}$

$|x-5| = 3$

$x - 5 = 3$ or $x - 5 = -3$
$+5 \quad +5 \qquad +5 \quad +5$

$x = 8 \qquad x = 2$

$\{8, 2\}$

(11) $|x+5| - 2 = 6$
$+2 \quad +2$

$|x+5| = 8$

$x + 5 = 8$ or $x + 5 = -8$
$-5 \quad -5 \qquad -5 \quad -5$

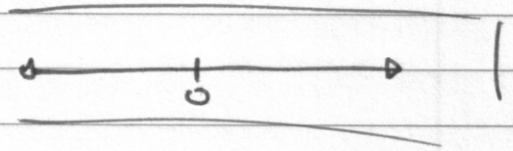
$x = 3$ or $x = -13$

$\{3, -13\}$

(12) $-3|x| - 6 = 12$
$+6 \quad +6$

$\frac{-3|x|}{-3} = \frac{18}{-3}$

$|x| = -6$ No Solution

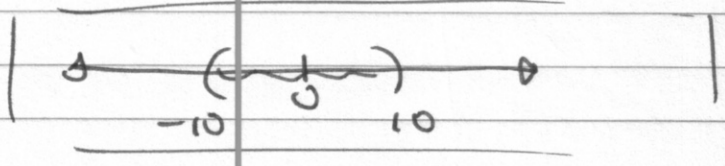


(13) $2|x| - 6 < 14$
$+6 \quad +6$

$\frac{2|x|}{2} < \frac{20}{2}$

$|x| < 10$

$-10 < x < 10$

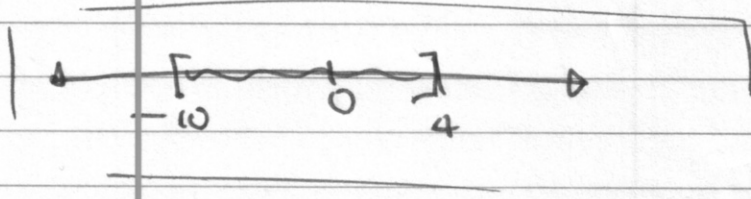


(14) $\frac{-4|x+3|}{-4} \geq \frac{-28}{-4}$

$|x+3| \leq 7$

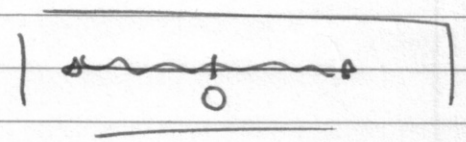
$-7 \leq x+3 \leq 7$
$-3 \quad -3 \quad -3$

$-10 \leq x \leq 4$



$\frac{-3|x|}{-3} < \frac{21}{-3}$

$|x| > -7$



(15) $-3|x| - 9 < 12$
$+9 \quad +9$

$-3|x| < 21$

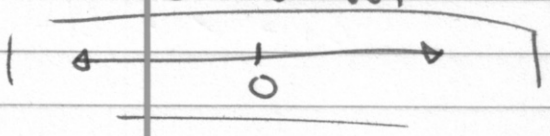
(16) $2|x+1| + 17 \leq 5$

$-17 \quad -17$

$\frac{2|x+1|}{2} \leq \frac{-12}{2}$

$|x+1| \leq -6$; never happens

No Solution

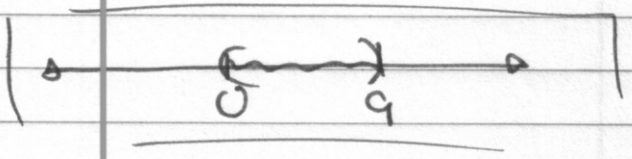


(17) $-6 < 2x - 6 < 12$

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

$\frac{0}{2} < \frac{2x}{2} < \frac{18}{2}$

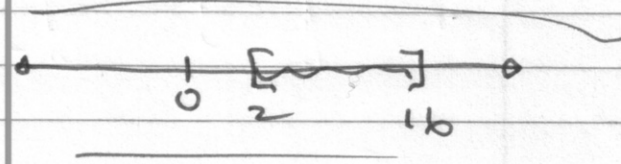
$0 < x < 9$



(18) $8 \leq x + 6 \leq 22$

$-6 \quad -6 \quad -6$

$2 \leq x \leq 16$



(19) $(-\infty, \infty)$ (20) $[-\infty, +]$ (21) $(-\infty, \infty)$ (22) none

(23) $(0, 9)$ (24) $[2, 16]$

(25) $\sqrt{16} = (4)$

(26) $\sqrt{36x^2}$

$\sqrt{36}\ \sqrt{x^2}$

$(6x)$

(27) $\sqrt{\frac{49}{x^6}} = \frac{\sqrt{49}}{\sqrt{x^6}}$

$= \frac{7}{x^{6/2}}$

$= \left(\frac{7}{x^4}\right)$

(28) $\sqrt{25x^4y^{10}}$

$\sqrt{25}\ \sqrt{x^4}\ \sqrt{y^{10}}$

$5x^{4/2}y^{10/2}$

$(5x^2y^5)$

(29) $\sqrt[3]{64} = (4)$

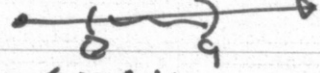
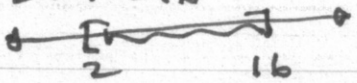
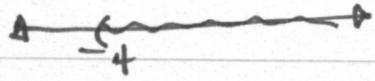
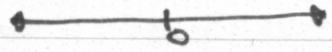
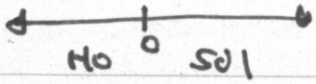
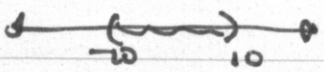
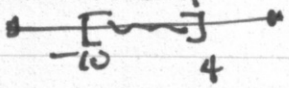
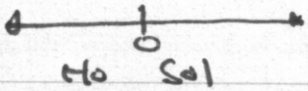
(30) $\sqrt[3]{125x^3}$

$\sqrt[3]{125}\ \sqrt[3]{x^3}$

$5x^{3/3}$

$5x^1$

$(5x)$

1	$\{0, 3, 4, \ldots 10, 9, 6, \ldots 9\}$ ✓	17	$0 < x < 9$  ✓ ✓
2	$\varnothing$ ✓	18	$2 \leq x \leq 16$  ✓ ✓
3	$\{1, 3, 5, 7, 9, 0, 2\}$ ✓	19	$(-\infty, \infty)$ ✓
4	$\{1, 3, 5\}$ ✓	20	$[-10, 4]$ ✓
5	$x > 3$ or $x > -4$ ✓  ✓	21	$(-\infty, \infty)$ ✓
6	$x \leq -12$ and $x \geq 7$ ✓  ✓	22	none ✓
7	$\{-7, -12\}$ ✓ ✓	23	$(0, 9)$ ✓
8	$\{6, -6\}$ ✓ ✓	24	$[7, 16]$ ✓
9	$\{7, -3\}$ ✓ ✓	25	4 ✓
10	$\{8, 2\}$ ✓ ✓	26	$6x$ ✓
11	$\{3, -13\}$ ✓ ✓	27	$\frac{7}{x^4}$ ✓ ✓
12	 ✓ ✓	28	$5x^2y^5$ ✓ ✓
13	$-10 < x < 10$  ✓ ✓	29	-4 ✓
14	$-10 \leq x \leq 4$  ✓ ✓	30	$5x$ ✓
15	 ✓ ✓	31	$\frac{x^4}{2}$ ✓ ✓
16	 ✓ ✓	32	$3q^2b^5$ ✓ ✓

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East Los Angeles College

Department of Mathematics

Math 125

Test 1

Let $A = \{0,2,4,6,8,10\}$ $B = \{1,3,5,7,9\}$ $C = \{a, b, c, d, e, f, g\}$

$D = \{0,1,2,3,4,5\}$

Determine the following operations with the indicated sets.

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2) $A \cap C$

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16) $2|x + 1| + 17 \leq 5$

17) $-6 < 2x - 6 < 12$

18) $8 \leq x + 6 \leq 22$

Write your solutions in **interval notation.**

19) Problem 13

20) Problem 14

21) Problem 15

22) Problem 16

23) Problem 17

24) Problem 18

Evaluate the following radicals.

25) $\sqrt{16}$

26) $\sqrt{36x^2}$

27) $\sqrt{\frac{49}{x^8}}$

28) $\sqrt{25x^4y^{10}}$

29) $\sqrt[3]{-64}$

30) $\sqrt[3]{125x^3}$

31) $\sqrt[3]{\frac{x^{12}}{8}}$

32) $\sqrt[3]{27a^6b^{15}}$

math 125 Test 1

(1) $A \cup C = \{0, 2, 4, 6, 8, 10, a, b, c, d, e, f, g\}$

(2) $A \cap C = \emptyset$

(3) $B \cup D = \{1, 3, 5, 7, 9, 0, 1, 2, 3, 4, 8\}$

$= \{1, 3, 5, 7, 9, 0, 2\}$

(4) $B \cap D = \{1, 3, 5\}$

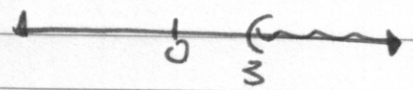
(5) $2x - 8 > -2$ or $-x + 7 < 11$

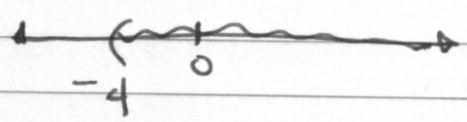
$+8 \quad +8 \qquad\qquad -7 \quad -7$

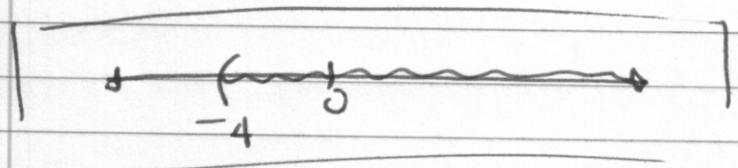
$\frac{2x}{2} > \frac{6}{2}$ or $-x < 4$

$x > 3$ (or) $-1 \cdot x < 4 \cdot -1$

$x > -4$







(6) $2x \leq -24$ and $3x - 4 \geq x + 10$

$\frac{2x}{2} \leq \frac{-24}{2}$

$x \leq -12$

$3x - 4 \geq x + 10$

$-x \quad -x$

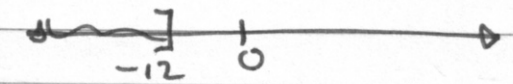
$2x - 4 \geq 10$

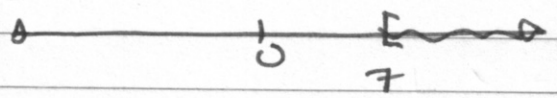
$+4 \quad +4$

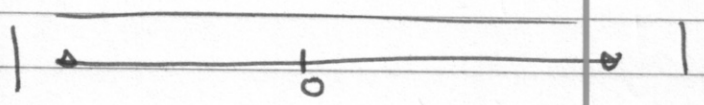
$\frac{2x}{2} \geq \frac{14}{2}$

and

$x \geq 7$







(7) $|x + 7| = 5$

$x + 7 = 5$ or $x + 7 = -5$

$-7 \quad -7$ $\quad -7 \quad -7$

$x = -2$ $\quad x = -12$

$\{-2, -12\}$

(8) $2|x| + 5 = 17$
$-5 \quad -5$

$\frac{2|x|}{2} = \frac{12}{2}$

$|x| = 6$

$x = 6$ or $x = -6$

$\{6, -6\}$

(9) $4|x-2| - 8 = 12$
$+8 \quad +8$

$\frac{4|x-2|}{4} = \frac{20}{4}$

$|x-2| = 5$

$x - 2 = 5$ or $x - 2 = -5$
$+2 \quad +2 \qquad +2 \quad +2$

$x = 7$ $\qquad$ $x = -3$

$\{7, -3\}$

(10) $\frac{-3|x-5|}{-3} = \frac{-9}{-3}$

$|x-5| = 3$

$x - 5 = 3$ or $x - 5 = -3$
$+5 \quad +5 \qquad +5 \quad +5$

$x = 8$ $\qquad$ $x = 2$

$\{8, 2\}$

(11) $|x+5| - 2 = 6$
$+2 \quad +2$

$|x+5| = 8$

$x + 5 = 8$ or $x + 5 = -8$
$-5 \quad -5 \qquad -5 \quad -5$

$x = 3$ or $x = -13$

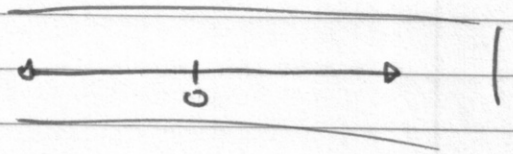
$\{3, -13\}$

(12) $-3|x| - 6 = 12$
$+6 \quad +6$

$\frac{-3|x|}{-3} = \frac{18}{-3}$

$|x| = -6$ No Solution

$\{\}$

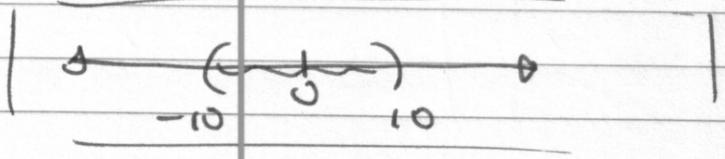


(13) $2|x| - 6 < 14$
$+6 \quad +6$

$\frac{2|x|}{2} < \frac{20}{2}$

$|x| < 10$

$-10 < x < 10$

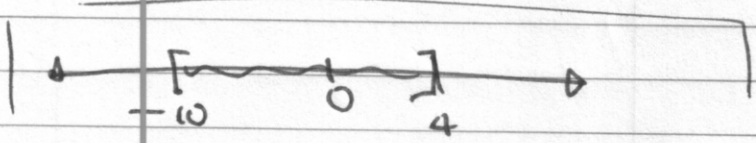


(14) $\frac{-4|x+3|}{-4} \geq \frac{-28}{-4}$

$|x+3| \leq 7$

$-7 \leq x+3 \leq 7$
$-3 \quad -3 \quad -3$

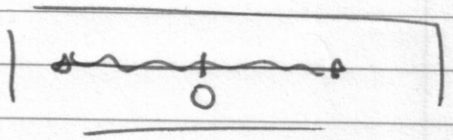
$-10 \leq x \leq 4$



$\frac{-3|x|}{-3} < \frac{21}{-3}$

$|x| > -7$

$\mathbb{R}$



(15) $-3|x| - 9 < 12$
$+9 \quad +9$

$-3|x| < 21$

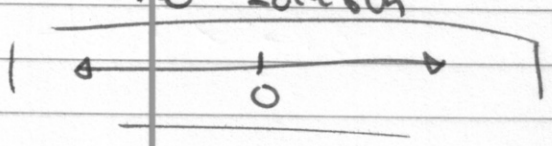
(16) $2|x+1| + 17 \leq 5$

$-17 \quad -17$

$\frac{2|x+1|}{2} \leq \frac{-12}{2}$

$|x+1| \leq -6$; never happens

no solution

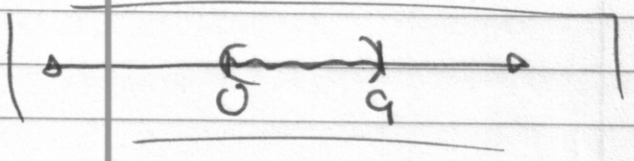


(17) $-6 < 2x - 6 < 12$

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

$\frac{0}{2} < \frac{2x}{2} < \frac{18}{2}$

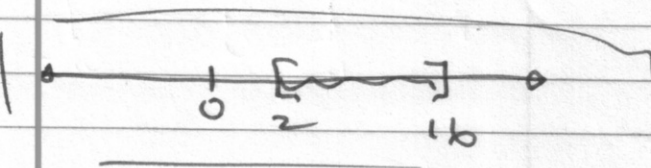
$0 < x < 9$



(18) $8 \leq x + 6 \leq 22$

$-6 \quad -6 \quad -6$

$2 \leq x \leq 16$



(19) $(-\infty, \infty)$ (20) $[-10, +]$ (21) $(-\infty, \infty)$ (22) none

(23) $(0, 9)$ (24) $[2, 16]$

(25) $\sqrt{16} = 4$

(26) $\sqrt{36x^2}$

$\sqrt{36}\ \sqrt{x^2}$

$6x$

(27) $\sqrt{\frac{49}{x^8}} = \frac{\sqrt{49}}{\sqrt{x^8}}$

$= \frac{7}{x^{8/2}}$

$= \frac{7}{x^4}$

(28) $\sqrt{25x^4y^{10}}$

$\sqrt{25}\ \sqrt{x^4}\ \sqrt{y^{10}}$

$5x^{4/2}y^{10/2}$

$5x^2y^5$

(29) $\sqrt[3]{64} = 4$

(30) $\sqrt[3]{125x^3}$

$\sqrt[3]{125}\ \sqrt[3]{x^3}$

$5x^{3/3}$

$5x^1$

$5x$

(31) $\sqrt[3]{\frac{x^{12}}{8}} = \frac{\sqrt[3]{x^{12}}}{\sqrt[3]{8}} = \frac{x^{12/3}}{2}$

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

(32) $\sqrt[3]{27a^6b^{15}}$

$\sqrt[3]{27}\ \sqrt[3]{a^6}\ \sqrt[3]{b^{15}}$

$3a^{6/3}b^{15/3}$

$3a^2b^5$