

6/6/2016

29-32, 35-38, 47-66, 73-75

$$\underline{29.} \quad (a) \quad \frac{3}{10} + \frac{4}{15} \quad \text{LCD} = 30$$

$$= \frac{3}{10} \cdot \frac{3}{3} + \frac{4}{15} \cdot \frac{2}{2} = \frac{9}{30} + \frac{8}{30} = \boxed{\frac{17}{30}}$$

$$(b) \quad \frac{1}{4} + \frac{1}{5} \quad \text{LCD} = 20$$

$$= \frac{1}{4} \cdot \frac{5}{5} + \frac{1}{5} \cdot \frac{4}{4} = \frac{5}{20} + \frac{4}{20} = \boxed{\frac{9}{20}}$$

$$\underline{30.} \quad (a) \quad \frac{2}{3} - \frac{3}{5} \quad \text{LCD} = 15$$

$$= \frac{2}{3} \cdot \frac{5}{5} - \frac{3}{5} \cdot \frac{3}{3} = \frac{10-9}{15} = \boxed{\frac{1}{15}}$$

$$(b) \quad 1 + \frac{5}{8} - \frac{1}{6} \quad \text{LCD} = 24$$

$$= \frac{1}{1} \cdot \frac{24}{24} + \frac{5}{8} \cdot \frac{3}{3} - \frac{1}{6} \cdot \frac{4}{4} = \frac{24 + 15 - 4}{24} = \boxed{\frac{33}{24}}$$

$$\underline{31.} \quad (a) \quad \frac{2}{3} \left(6 - \frac{3}{2} \right) = \frac{2}{3} \cdot 6 - \frac{2}{3} \cdot \frac{3}{2} = \frac{2 \cdot 6}{3} - \frac{2 \cdot 3}{6}$$

$$= \frac{2 \cdot \cancel{2} \cdot \cancel{3}}{\cancel{3}} - \frac{\cancel{6}}{\cancel{6}}$$

$$= 4 - 1 = \boxed{3}$$

$$\underline{32.} \quad (a) \quad \frac{2}{\frac{2}{3}} - \frac{\frac{2}{3}}{2} = 2 \div \frac{2}{3} - \frac{2}{3} \div 2$$

$$= \cancel{2} \cdot \frac{3}{\cancel{2}} - \frac{\cancel{2}}{3} \cdot \frac{1}{\cancel{2}} = 3 - \frac{1}{3} = \frac{9-1}{3} = \boxed{\frac{8}{3}}$$

$$(b) \quad \frac{\frac{2}{5} + \frac{1}{2}}{\frac{1}{10} + \frac{3}{15}} \quad \text{LCD} = 30$$

$$= \frac{30 \left(\frac{2}{5} + \frac{1}{2} \right)}{30 \left(\frac{1}{10} + \frac{3}{15} \right)} = \frac{12 + 15}{3 + 6} = \frac{27}{9} = \boxed{3}$$

35. (a) FALSE (b) TRUE

36. (a) $\sqrt{3} = 1.73205\dots$
 $1.7325 \leftarrow \text{BIGGER}$

\uparrow IN THE DECIMAL PLACE WHERE THEY FIRST DIFFER, 1.7325 IS BIGGER (5 > 0)

\therefore FALSE

(b) $1.732 = 1.73200$
 $\sqrt{3} = 1.73205\dots \leftarrow \text{BIGGER} \quad \therefore$ FALSE

37. (a) $\frac{10}{2} \geq \frac{5}{1} \Leftrightarrow 10 \cdot 1 \geq 5 \cdot 2$
 $10 \geq 10 \quad \underline{\underline{\text{TRUE}}}$

(b) $\frac{6}{10} \geq \frac{5}{6} \Leftrightarrow 6 \cdot 6 \geq 5 \cdot 10$
 $36 \geq 50 \quad \underline{\underline{\text{FALSE}}}$

38. (a) $\frac{7}{11} \geq \frac{8}{13} \Leftrightarrow 7 \cdot 13 \geq 8 \cdot 11$

$91 \geq 88$

True

(b) $-\frac{3}{5} > -\frac{3}{4} \Leftrightarrow \frac{3}{5} < \frac{3}{4}$

$\Leftrightarrow 3 \cdot 4 < 3 \cdot 5$

$12 < 15$

True

47. $-3 < x < 0$



52. $x < 1$



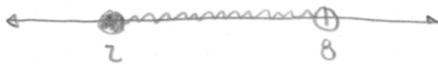
48. $2 < x \leq 8$



53. $(-\infty, 1]$



49. $2 \leq x < 8$



54. $[1, 2]$



50. $-6 \leq x \leq -\frac{1}{2}$



55. $(-2, 1]$



51. $2 \leq x$



56. $[-5, \infty)$



57. $(-1, \infty)$



58. $(-5, 2)$



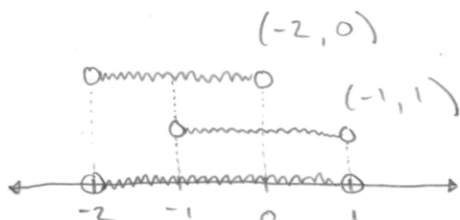
59. (a) $[-3, 5]$

(b) $(-3, 5)$

60. (a) $[0, 2)$

(b) $(-2, 0]$

61.



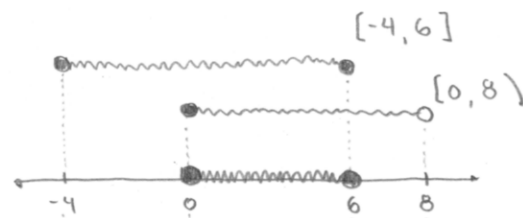
\cup UNION = $(-2, 1)$

62.



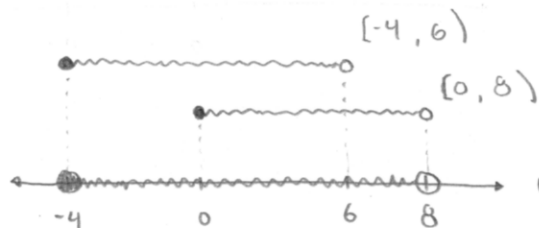
\cap INTERSECTION = $(-1, 0)$

63.



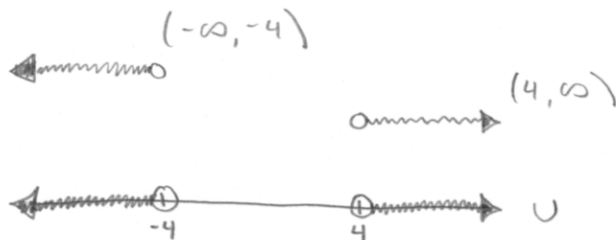
\cap INTERSECTION = $[0, 6]$

64.



\cup UNION = $[-4, 8)$

65.



\cup UNION = $(-\infty, -4) \cup (4, \infty)$

66. $(-\infty, 6]$
 $(2, 10)$



INTERSECTION = $(2, 6]$

73. DISTANCE = DIFFERENCE + ABSOLUTE VALUE

$$d(-2, 3) = |(-2) - (3)| = |-5| = \boxed{5}$$

$$\left(\text{or } |(3) - (-2)| = |3 + 2| = |5| = 5 \right)$$

74. $d(-2.5, 1.5) = |(-2.5) - (1.5)| = |-4| = \boxed{4}$

$$\left(\text{or } |(1.5) - (-2.5)| = |1.5 + 2.5| = |4| = 4 \right)$$

75. $d(2, 17) = |2 - 17| = |17 - 2| = \boxed{15}$

$$d(-3, 21) = |-3 - 21| = |21 - (-3)| = \boxed{24}$$

$$d\left(\frac{11}{8}, -\frac{3}{10}\right) = \left| \frac{11}{8} - \left(-\frac{3}{10}\right) \right| = \left| \frac{11}{8} + \frac{3}{10} \right|$$

$$= \left| \frac{11}{8} \cdot \frac{5}{5} + \frac{3}{10} \cdot \frac{4}{4} \right| = \left| \frac{55 + 12}{40} \right| = \boxed{\frac{67}{40}}$$