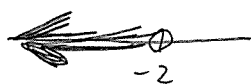


Section 2.5

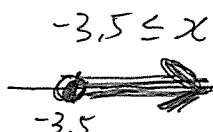
2.5 $\perp$

296-a) $x < -2$



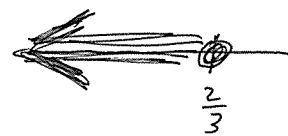
$(-\infty, -2)$

296-b) $x \geq -3.5$



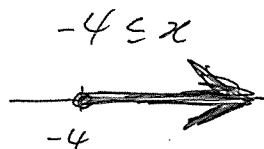
$[-3.5, \infty)$

296-c) $x \leq \frac{2}{3}$



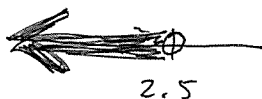
$(-\infty, \frac{2}{3}]$

298-a) $x \geq -4$



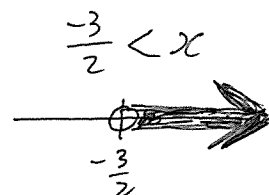
$[-4, \infty)$

298-b) $x < 2.5$



$(-\infty, 2.5)$

298-c) $x > -\frac{3}{2}$



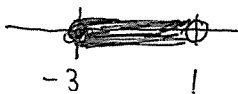
$(-\frac{3}{2}, \infty)$

300-a) $-5 < x < 2$



$(-5, 2)$

300-b) $-3 \leq x < 1$



$[-3, 1)$

300-c) $0 \leq x \leq 3.5$



$[0, 3.5]$

302-a) $-1 < x < 3$



$(-1, 3)$

302-b) $-3 < x \leq -2$



$(-3, -2]$

302-c) $-1.25 \leq x \leq 0$



$[-1.25, 0]$

2.5 2

$$304-a) \quad \varphi = (2)^2 \quad r_0 = (2)'(5)' \quad LCD = (2)^2(5)' = 20$$

$$a + \frac{3}{4} \geq \frac{7}{10}$$

$$a \geq \frac{-1}{20}$$

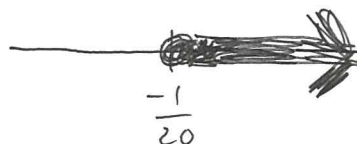
$$\left(\frac{20}{1}\right)\left(\frac{a}{1} + \frac{3}{4}\right) \geq \left(\frac{7}{10}\right)\left(\frac{20}{1}\right)$$

$$\frac{-1}{20} \leq a$$

$$\begin{array}{r} 20a + 15 \geq 14 \\ -15 \quad -15 \\ \hline \end{array}$$

$$\frac{20a}{20} \geq \frac{-1}{20}$$

$$a \geq \frac{-1}{20}$$



$$\left[\frac{-1}{20}, \infty\right)$$

$$304-b) \quad \frac{8x}{8} > \frac{72}{8}$$

$$x > 9$$

$$9 < x$$



$$(9, \infty)$$

$$304-c) \quad 20 > \frac{2}{5}h$$

$$\left(\frac{5}{2}\right)\left(\frac{20}{1}\right) > \left(\frac{2}{5}h\right)\left(\frac{5}{2}\right)$$

$$50 > h$$

$$h < 50$$



$$(-\infty, 50)$$

$$306-a) \quad \varphi - \frac{13}{20} < -\frac{5}{12}$$

$$\begin{aligned} 20 &= (2)^2(5)' \\ 12 &= (2)^2(3)' \\ LCD &= (2)^2(3)'(5)' \\ &= 60 \end{aligned}$$

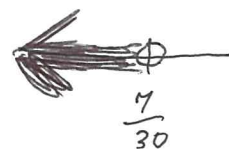
$$\left(\frac{60}{1}\right)\left(\frac{\varphi}{1} - \frac{13}{20}\right) < \left(\frac{-5}{12}\right)\left(\frac{60}{1}\right)$$

$$60\varphi - 39 < -25$$

$$\begin{array}{r} 60\varphi - 39 < -25 \\ +39 \quad +39 \\ \hline 60\varphi < 14 \end{array}$$

$$\frac{60\varphi}{60} < \frac{14}{60}$$

$$\varphi < \frac{14}{60} = \frac{7}{30}$$



$$\left(-\infty, \frac{7}{30}\right)$$

$$306-b) \quad \frac{9t}{9} \geq \frac{-27}{9}$$

$$t \geq -3$$

$$-3 \leq t$$



-3

$$[-3, \infty)$$

$$306-c) \quad \frac{7j}{6} \geq 42$$

$$\left(\frac{6}{7}\right)\left(\frac{7j}{6}\right) \geq \left(\frac{42}{1}\right)\left(\frac{6}{7}\right)$$

$$j \geq 36$$

$$36 \leq j$$



36

$$[36, \infty)$$

$$308-a) \quad -5u \geq 65$$

$$\frac{-65 + 5u}{-65 + 5u} \quad \frac{-65 + 5u}{-65 + 5u}$$

$$\frac{-65}{5} \geq \frac{5u}{5}$$

$$-13 \geq u$$

$$u \leq -13$$



-13

$$(-\infty, -13]$$

$$308-b) \quad \frac{a}{-3} \leq 9$$

$$\frac{-a}{3} \leq 9$$

$$\frac{-9 + \frac{a}{3}}{-9 + \frac{a}{3}} \quad \frac{-9 + \frac{a}{3}}{-9 + \frac{a}{3}}$$

$$-9 \leq \frac{a}{3}$$

$$\left(\frac{3}{1}\right)\left(\frac{-9}{1}\right) \leq \left(\frac{a}{3}\right)\left(\frac{3}{1}\right)$$

$$-27 \leq a$$



-27

$$[-27, \infty)$$

$$310-b) \quad -25 < \frac{p}{-5}$$

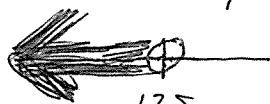
$$-25 < \frac{-p}{5}$$

$$\frac{+p}{5} + 25 \quad \frac{+p}{5} + 25$$

$$\frac{p}{5} < 25$$

$$\left(\frac{5}{1}\right)\left(\frac{p}{5}\right) < \left(\frac{25}{1}\right)\left(\frac{5}{1}\right)$$

$$p < 125$$



125

$$(-\infty, 125)$$

$$310-a) \quad -7d > 105$$

$$\frac{-105 + 7d}{-105 + 7d} \quad \frac{-105 + 7d}{-105 + 7d}$$

$$\frac{-105}{7} > \frac{7d}{7}$$

$$-15 > d$$

$$d < -15$$



-15

$$(-\infty, -15)$$

$$312) 4v \geq 9v - 40$$

$$\begin{array}{r} +40 - 4v \quad -4v + 40 \\ \hline \end{array}$$

$$\frac{40}{5} \geq \frac{5v}{5}$$

$$8 \geq v$$

$$v \leq 8$$



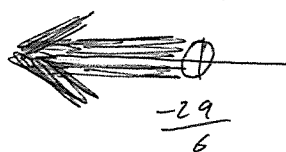
$$(-\infty, 8]$$

$$314) 13q < 7q - 29$$

$$\begin{array}{r} -7q \quad -7q \\ \hline \end{array}$$

$$\frac{6q}{6} < \frac{-29}{6}$$

$$q < \frac{-29}{6}$$



$$(-\infty, \frac{-29}{6})$$

$$316) 12x + 3(x + 7) > 10x - 24$$

$$12x + 3x + 21 > 10x - 24$$

$$15x + 21 > 10x - 24$$

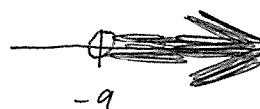
$$\begin{array}{r} -10x - 21 \quad -10x - 21 \\ \hline \end{array}$$

$$\frac{5x}{5} > \frac{-45}{5}$$

$$x > -9$$

$$x > -9$$

$$-9 < x$$



$$(-9, \infty)$$

$$318) 6h - 4(h - 1) \leq 7h - 11$$

$$6h - 4h + 4 \leq 7h - 11$$

$$2h + 4 \leq 7h - 11$$

$$\begin{array}{r} -2h + 11 \quad -2h + 11 \\ \hline \end{array}$$

$$\frac{15}{5} \leq \frac{5h}{5}$$

$$3 \leq h$$

$$3 \leq h$$



$$[3, \infty)$$

$$320) 8m - 2(14 - m) \geq 7(m - 4) + 3m$$

$$8m - 28 + 2m \geq 7m - 28 + 3m$$

$$10m - 28 \geq 10m - 28$$

$$\frac{-10m + 28}{-10m + 28}$$

$$0 \geq 0$$

infinite solution

"identity"

true statement

322)

$$4 = (2)^2$$

$$3 = (3)^1$$

$$12 = (2)^2(3)^1$$

$$2 = (2)^1$$

$$LCD = (2)^2(3)^1 = 12$$

$$\frac{3}{4}b - \frac{1}{3}b < \frac{5}{12}b - \frac{1}{2}$$

$$\left(\frac{12}{1}\right)\left(\frac{3}{4}b - \frac{1}{3}b\right) < \left(\frac{5}{12}b - \frac{1}{2}\right)\left(\frac{12}{1}\right)$$

no solution

$$9b - 4b < 5b - 6$$

contradiction

$$5b < 5b - 6$$

$$\frac{-5b}{-5b}$$

$$0 < -6$$

false statement

$$324) \frac{2}{3}g - \frac{1}{2}(g - 14) \leq \frac{1}{6}(g + 42)$$

$$3 = (3)^1$$

$$2 = (2)^1$$

$$LCD = (2)^1(3)^1 = 6$$

$$6 = (2)^1(3)^1$$

$$\frac{2}{3}g - \frac{1}{2}g + \frac{14}{2} \leq \frac{1}{6}g + \frac{42}{6}$$

$$\frac{2}{3}g - \frac{1}{2}g + 7 \leq \frac{1}{6}g + 7$$

$$\left(\frac{6}{1}\right)\left(\frac{2}{3}g - \frac{1}{2}g + 7\right) \leq \left(\frac{1}{6}g + 7\right)\left(\frac{6}{1}\right)$$

infinite solution

$$4g - 3g + 42 \leq g + 42$$

"identity"

$$g + 42 \leq g + 42$$

$$\frac{-g - 42}{-g - 42}$$

$$0 \leq 0$$

true statement

$$326) \quad 6 = (2)'(3)' \quad 4 = (2)^2 \quad 12 = (2)^2(3)' \quad 3 = (3)' \quad 2.5 \quad \underline{16}$$

$$LCD = (2)^2(3)' = 12$$

$$\frac{5}{6}a - \frac{1}{4}a > \frac{7}{12}a + \frac{2}{3}$$

no solution

$$\left(\frac{12}{1}\right)\left(\frac{5}{6}a - \frac{1}{4}a\right) > \left(\frac{7}{12}a + \frac{2}{3}\right)\left(\frac{12}{1}\right)$$

contradiction

$$10a - 3a > 7a + 8$$

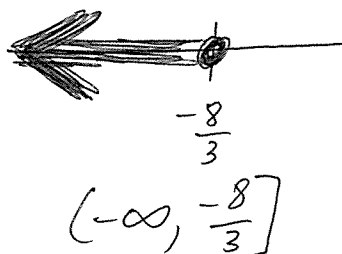
$$7a > 7a + 8$$

$$\frac{-7a \quad -7a}{0 > 8}$$

← false statement

$$328) \quad \frac{15k}{15} \leq \frac{-40}{15}$$

$$k \leq \frac{-8}{3}$$



$$330) \quad 23p - 2(6 - 5p) > 3(11p - 4)$$

$$23p - 12 + 10p > 33p - 12$$

no solution

$$33p - 12 > 33p - 12$$

contradiction

$$\frac{-33p + 12 \quad -33p + 12}{0 > 0}$$

← false statement

$$332) \quad \frac{-9}{4}x \geq \frac{-5}{12}$$

$$\frac{+5}{12} \quad + \frac{9}{4}x \quad \frac{+5}{12} \quad + \frac{9}{4}x$$

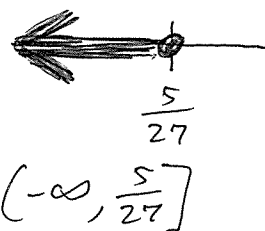
$$\frac{5}{12} \geq \frac{9}{4}x$$

$$\left(\frac{4}{9}\right)\left(\frac{5}{12}\right) \geq \left(\frac{9}{4}x\right)\left(\frac{4}{9}\right)$$

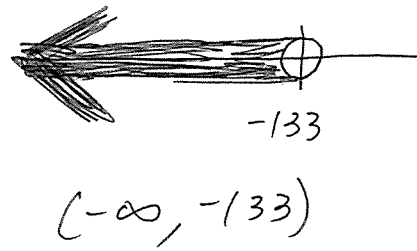
$$\frac{(4)(5)}{(9)(12)} \geq x$$

$$\frac{5}{27} \geq x$$

$$x \leq \frac{5}{27}$$



$$\begin{array}{r}
 334) \quad c + 34 < -99 \\
 \quad -34 \quad -34 \\
 \hline
 c < -133
 \end{array}$$



$$336) \quad \frac{m}{18} \geq -4$$

$$\left(\frac{18}{1}\right)\left(\frac{m}{18}\right) \geq \left(\frac{-4}{1}\right)\left(\frac{18}{1}\right)$$

$$m \geq -72$$

$$-72 \leq m$$

