Chapter 5 : INEQUALITIES

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Checkpoint 1

1a) $7x+2=-19$

$7x+2-2=19-2$

$\frac{7x}{7}=\frac{-21}{7}$

$x=-3$ ✓

1b) $-7x=21$

$\frac{-7x}{-7}=\frac{21}{-7}$

$x=-3$ ✓

1c) $3x-\frac{1}{3}=5$

$3x-\frac{1}{3}-\frac{1}{3}=5-\frac{1}{3}$

$\frac{3x}{3}=\frac{4.67}{3}$

$x=1.56$ ✓

$3x=\frac{14}{3}$

$x=\frac{14}{3}\left(\frac{1}{3}\right)$

$x=\frac{14}{9}=1\frac{5}{9}$

1d) $5x-4=21$

$5x-4+4=21+4$

$\frac{5x}{5}=\frac{25}{5}$

$x=5$ ✓

1e) $18-7x=-3$

$18-18-7x=-3-18$

$\frac{-7x}{-7}=\frac{-21}{-7}$

$x=3$ ✓

1f) $3(x+4)=21$

$3x+12=21$

$3x+12-12=21-12$

$\frac{3x}{3}=\frac{9}{3}$

$x=3$ ✓

1g) $\frac{2x}{3}-\frac{3x}{5}=8$

$\frac{2x\times5}{3\times5}-\frac{3x\times3}{5\times3}$ ✓

$\frac{10x-9x}{15}=8$ ✓

~~$\frac{x}{15}=8\times15$~~

~~$x=120$~~

$\frac{x}{15}=120$

$x=120\times15=1800$

1h) $3x-9=5x-3$

$3x-5x-9=5x-5x-3$

$-2x-9=-3$

$-2x-9+9=-3+9$

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

$x=-3$ ✓

1i) $3(x-3)=4(2x+1)$

$3x-9=8x+4$

$3x-8x-9=8x-8x+4$

$-5x-9=4$

$-5x-9+9=4+9$

$\frac{-5x}{-5}=\frac{13}{-5}$

$x=-2.6$

$5x=-13$

$x=-\frac{13}{5}$

2a) $-3h+5h\le-26$

$\frac{2h}{2}\le\frac{-26}{2}$

$h\le-13$ ✓

b) $6q-192\le2(3-6q)$

$6q-192\le6-12q+12q$

$6q-12q-192\le6$

$q-192\le6$

$q-192+192\le6+192$

$q\le198$ ✗

$6q-192\le6-12q$

$18q\le198$

$q\le\frac{198}{18}$

$q\le11$

c) $2(3-4x)<10x-84$

$6-8x<10x-84$

$18x>90$ ✗

$x>\frac{90}{18}$

$x>5$

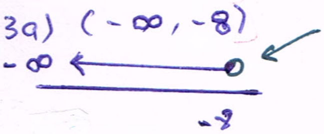
d) $5v-11+4v\ge-137$

$5v+4v-11+11\ge-137+11$

$\frac{9v}{9}\ge-\frac{126}{9}$

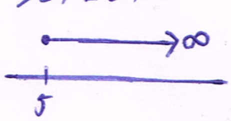
$v\ge-14$ ✓

3a) $(-\infty,-8)$



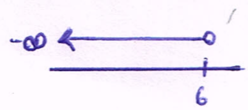
$x<-8$

3b) $[5,\infty)$



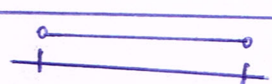
$x\ge5$ ✓

c) $(-\infty,6)$



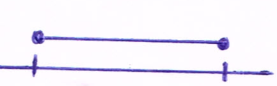
$x<6$ ✓

4a)



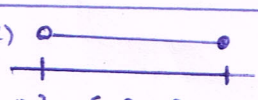
$(1,5)$ ✓

4b)



$[2,7]$

4c)

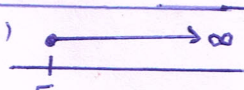


$(-3,-1]$ ✓

4d)

$(-3,4]$

4e)



$(\infty,5]$ ✗

$[5,\infty)$

5) $5(x+3(1-x)+2) \geq 5$

$= 5(x+3-3x+2) \geq 5$ ✓

$= 5(-2x+5) \geq 5$ ✓

$= -10x+25 \geq 5$ ✓

$= -10x+25-25 \geq 5-25$

$= \frac{-10x}{-10} \geq \frac{-20}{-10}$

$x \leq 2$