P27

[1.1] $2x+5>10$ [1.2] $\frac{50}{r} \geq t$

P28

[1.1] 2, 3 [1.2] 1

P29

[1] $5-3=2$, $3-3=0$. Since $2>0$, direction is unchanged.

P30

[2] $-1(-5)=5$
$(-2)(-5)=10$ Since $10>5$, sign reverses

i.e. if $-2<-1$ then $(-2)(-5)>(-1)(-5)$

[3] $5\div 2=5/2$
$3\div 2=3/2$, $5/2>3/2$ so unchanged sign

$5\div(-2)=-5/2$
$3\div(-2)=-3/2$, $5/2<3/2$ so ineq sign reversed

P31

[4.1] $\geq$, $\geq$ [4.2] $\geq$, $\geq$ [4.3] $\leq$, $\leq$

[5.1] subtract 7 from both sides
[5.2] multiply both sides by $1/2$
[5.3] multiply both sides by -4 and ineq sign reverses

→

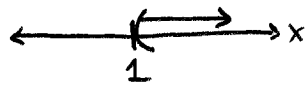
P32

[1] 1, 2

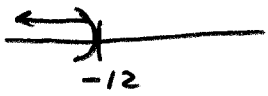
[2] $\{x : x \leq 2\}$

P33

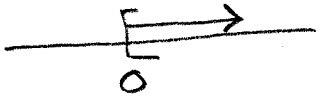
[3.1] $x - 4 > -3 \equiv x > 1$. $\therefore \{x : x > 1\}$



[3.2] $5 + x < -7 \equiv x < -12$ $\therefore \{x : x < -12\}$



[3.3] $x + 8 \geq 8 \equiv x \geq 0$ $\therefore \{x : x \geq 0\}$



[4.1] $4x < 16 \equiv x < 4$

[4.2] $14 < 7x \equiv 2 < x$ (note equivalent to $x > 2$)

[4.3] $\frac{3}{4}x \leq 12 \equiv x \leq 12(4/3) \equiv x \leq 16$

P34

[5.1] $-5x > 20 \equiv x < -4$

[5.2] $-2x > 7 \equiv x < -\frac{7}{2}$

[5.3] $-3x \leq -21 \equiv x \geq 7$

[6.1] $2x < 3 + x \equiv x < 3$

[6.2] $2x - 8 < 14 \equiv 2x < 22 \equiv x < 11$

[6.3] $3x \geq 4x + 5 \equiv -5 \geq x \equiv x \leq -5$

→

P35

[7.1] $2x+3 > x-4$

$x > 7$

[7.2] $4x-7 \geq 5x-3$

$-x \geq 4$

$x \leq -4$

[7.3] $7x-8 > x-10$

$6x > -2$

$x > -\frac{1}{3}$

[7.4] $2x-6 \leq 6x+4$

$-4x \leq 10$

$x \geq -\frac{5}{2}$

[8] $7x-2(x-3) < 16$

$7x-2x+6 < 16$

$5x < 10$

$x < 2$

P36

[9.1] $2(x-1) < 4$

$2x-2 < 4$

$2x < 6$

$x < 3$

[9.2] $2x-(3x-4) \geq 6$

$2x-3x+4 \geq 6$

$-x \geq 2$

$x \leq -2$

[9.3] $x-(4x-1) < -5$

$x-4x+1 < -5$

$-3x < -6$

$x > 2$

[9.4] $5-2(x+3) > -3$

$5-2x-6 > -3$

$-2x > -2$

$x < 1$

P37

[10.1] $3.1x - 4.2 \geq 1.8x - 1.6$

$31x - 42 \geq 18x - 16$ mult both sides by 10

$12x \geq 26$

$x \geq 13/6$

[10.2] $4.8 + x < 3.4x$

$48 + 10x < 34x$

$-14x < -48$

$x > 48/14$

$x > 24/7$

[10.3] $\frac{x-2}{3} > \frac{x+2}{4}$

$4(x-2) > 3(x+2)$ mult both sides by $3 \cdot 4$

$4x - 8 > 3x + 6$

$x > 14$

[10.4] $\frac{2}{3}x + \frac{1}{2} \leq \frac{3}{4}x$

$4x + 6 \leq 9x$ mult both sides by $3 \cdot 2 \cdot 4$

$-5x \leq -6$

$x \geq 6/5$

Drills

[1.1] $x + 9 > 4x - 6$

$-3x > -15$

$x < 5$

[1.2] $10 - x \geq -6$

$-x \geq -16$

$x \leq 16$

→

P 37 ctd

[1.3] $2(x-1) < 7-5x$

$2x-2 < 7-5x$

$7x < 9$

$x < \frac{9}{7}$

[1.4] $3(x-1)-(x-5) < x-3$

$3x-3-x+5 < x-3$

$x < -5$

[1.5] $0.8-0.2x \leq 0.5x-0.6$

$8-2x \leq 5x-6$

$-7x \leq -14$

$x \geq 2$

[1.6] $\frac{x+2}{6} - \frac{x}{3} \geq x-3$

$x+2-2x \geq 6x-18$

$-7x \geq -20$

$x \leq \frac{20}{7}$