# Solution for Exercise Problem

**1.**

i) $6 < 5 - 3x$

$6 - 5 < -3x$

$1 < -3x$

$1/3 < -x$

$-x > 1/3$

$x < -1/3$

ii) $4(x - 2) - 2 \leq 2x - 1$

$4x - 10 \leq 2x - 1$

$4x - 2x - 10 \leq 2x - 2x - 1$

$2x - 10 + 10 \leq -1 + 10$

$2x \leq 9$

$x \leq 9/2$

iii) $(7x + 1)/4 \geq 2x - 1$

$7x + 1 \geq 4(2x - 1)$

$7x + 1 \geq 8x - 4$

$1 \geq x - 4$

$5 \geq x$

$x \geq 5$

iv) $(5 - 2x)/3 \leq (x/6) - 5$

$5 - 2x \leq 3(x/6) - 15$

$5 - 2x \leq (x/2) - 15$

$2(5 - 2x) \leq x - 30$

$10 - 4x \leq x - 30$

$10 + 30 \leq x + 4x$

$40 \leq 5x$

$x \geq 8$

v) $(3x - 7)/2 \geq (x + 1)/5 - 2$

$5(3x - 7)/2 \geq x + 1 - 10$

$5(3x - 7) \geq 2(x - 9)$

$15x - 35 \geq 2x - 18$

$13x \geq -18 + 35$

$x \geq 17/13$


**2.** The marks obtained by a student of Class X in first and second terminal examination are 62 and 48, respectively. Find the number of minimum marks in the third terminal so that he should get in the annual examination to have an average of at least 60 marks. (Each exam is conducted for 100 marks)

solution:

Let x be the third terminal examination mark.

$(62+48+x)/3 \geq 60$

$62+48+x \geq 180$

$110 + x \geq 180$

$x \geq 180 - 110$

$x \geq 70.$

so he has to get minimum 70 marks in the annual examination to have an average of at least 60 marks

3) To receive Grade 'A' in a course, one must obtain an average of 90 marks or more in five examinations (each of 100 marks). If Samuel's marks in first four examinations are 87, 92, 94 and 95, find minimum marks that Samuel must obtain in fifth examination to get grade 'A' in the course.

solution:

Let x be the 5$^{th}$ examination mark.

$(87+92+94+95+ x)/5 \geq 90$

$368+ x \geq 5 \times 90$

$x \geq 450 - 368$

$x \geq 82$