

**NEW DISCOVERING MATHEMATICS
SECONDARY 3 (GRADE 9)
NON-CALCULATOR PRACTICE**

Name: _____ () Class: _____ Date: _____

Chapter 2 – More About Linear Inequalities (Worksheet B)

1 Solve each of the following inequalities and represent the solution on a number line.

(a) $2x - 8 > 21$

(b) $8 - 3x < 15$

(c) $\frac{x}{2} + 5 > 7$

2 (a) Find the smallest integer value of x that satisfies $2 - 7x \geq 9 - 3x$.

(b) Find the largest integer value of x that satisfies $4(9 - x) > 6 + 2x$.

3 Solve each of the following inequalities and represent the solution on a number line.

(a) $\frac{2x+10}{3} \leq \frac{4(x-6)}{5}$

(b) $\frac{10+x}{7} < 4 - \frac{3x-1}{2}$

4 Solve each of the following pairs of simultaneous inequalities.

Represent the solution on a number line.

(a) $4x - 12 < x$ and $5x + 26 \geq 11$

(b) $11 - x \leq 3x + 4$ and $\frac{x}{3} + 13 < 2 + x$

(c) $2x - 3 \geq \frac{3x+4}{3}$ and $\frac{4(2-2x)}{4} \leq \frac{5-2x}{2}$

5 Solve each of the following simultaneous inequalities.

(a) $-5 < \frac{x-3}{4} < 6$

(b) $3 < \frac{2x+9}{2} \leq 11$

6 Solve each of the following simultaneous inequalities.

(a) $3x - 8 \leq 10 < 2x + 7$

(b) $3(8 - x) < 10 \leq 7 - x$

(c) $2(x - 5) < \frac{8(x+2)}{3} \leq 3x - 15$

(d) $\frac{x-11}{2} \leq \frac{x+4}{3} < \frac{3x-4}{5}$

- 7 Give that x and y are integers such that $0 < x \leq 5$ and $-4 \leq y < 3$. Find
- the greatest possible value of $3x - 2y$,
 - the smallest possible value of $x^2 + y^2$,
 - the greatest possible value of $(x - y)^2$,
 - the greatest possible value of $\frac{y}{x}$.
- 8 Stephanie has 10 GB of data available on her mobile plan.
She uses 400 MB of data each day.
Find the least number of days after which her available data will be less than 3 GB.
- 9 Balu buys n packs of chocolates and some packs of sweets from a store.
There are a total of 12 items.
Each pack of chocolate cost \$9 and each pack of sweet cost \$5
- Find an expression, in terms of n , for the total cost of Balu's purchase.
 - Give that he spends more than \$70 but less than \$80, find the possible number of packs of chocolates that Balu bought.
- 10 Ash has $(2x - 5)$ \$50 notes , $(5x + 8)$ \$20 notes and $(2x + 7)$ \$10 notes.
- Find an expression, in terms of x , for the total value of money that Kenneth has.
 - The total amount of money Kenneth has is more than \$600. The total number of notes he has is not more than 30. Form a pair of simultaneous inequalities and solve it.
 - Hence the greatest possible amount of money Ash has.
- 11 A competition has a total of 40 questions. A participant is awarded 2 points for a correct answer, 1 point if the question is left blank and zero points for a wrong answer.
Salah left 6 questions blank and at least x wrong answers.
- Given that Salah scored at least 55 points, write down an inequality in x .
 - Solve the inequality and find the minimum number of questions Salah obtained correct.
- 12 The diagram shows a triangle of lengths $(x + 4)$ cm, $(2x - 5)$ cm and $(2x + 7)$ cm.
The perimeter of the triangle is at most 60 cm.
Find the possible values of x .

