

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

Name: _____ () Class: _____ Date: _____

Chapter 2 – More About Linear Inequalities (Worksheet A)

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

- (a) $x + 5 > 12$
- (b) $3x + 10 \geq 16$
- (c) $17 - 3x \geq 26$

2 (a) Find the smallest integer value of x that satisfies $6x - 13 \geq 4x - 15$.
(b) Find the largest integer value of x that satisfies $x + 19 < 2 - x$.

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

- (a) $\frac{3x-4}{5} > \frac{2x+7}{6}$
- (b) $\frac{5x-9}{2} + 1 \leq \frac{4x+1}{3}$

4 Solve each of the following pairs of simultaneous inequalities.
Represent the solution on a number line.

- (a) $x + 1 > 15$ and $2x - 3 < 35$
- (b) $3(1 - 5x) < 2(5x + 14)$ and $5(6 - 3x) \leq 3(2x - 11)$
- (c) $x \geq \frac{x+5}{3}$ and $\frac{2}{3}x - 5 < \frac{x-5}{4}$

5 Solve each of the following simultaneous inequalities.

- (a) $2 < \frac{x+2}{3} < 5$
- (b) $0 < \frac{3x+10}{6} \leq 2.5$

6 Solve each of the following simultaneous inequalities.

- (a) $x - 5 < 8 < x + 4$
- (b) $9 - x \leq 15 < 21 - x$
- (c) $2x - 1 < \frac{x+8}{2} \leq x + 3$
- (d) $\frac{2x-20}{3} < 4x - 1 < \frac{7x+3}{2}$

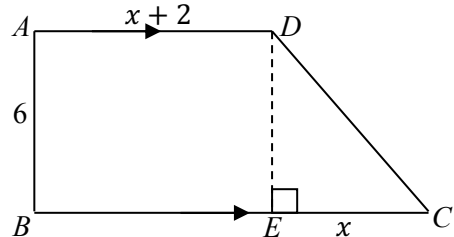
- 7 Give that x and y are integers such that $1 < x \leq 6$ and $-8 \leq y < 5$. Find
- the smallest possible value of $2x + 3y$,
 - the greatest possible value of $3x - 4y$,
 - the greatest possible value of $x^2 + y^2$,
 - the smallest possible value of $\frac{y}{x}$.
- 8 James buys 7 apples and n oranges. The cost of an apple and an orange are \$0.60 and \$0.5 respectively. James has \$12.
- Form an inequality in n using the above information.
 - Find the maximum number of oranges James can buy.
 - If James buys the maximum number of oranges, find the change he will receive.
- 9 To obtain a distinction for an examination, a student must score at least 75 marks. The examination consists of 2 papers which are 60 marks and 40 marks respectively.
- Latha scores 51 marks in the first paper. What is the minimum score she needs for the second paper to obtain a distinction?
 - Sue scores 21 marks for the second paper and did not obtain a distinction. What is the maximum possible mark for the first paper she could have scored?

- 10 In the diagram, $ABCD$ is a trapezium such that AD is parallel to BC .

E lies on BC such that DE is perpendicular to BC .

$AB = 6$ cm, $EC = x$ cm and $AD = (x + 2)$ cm.

- Give that the area of $ABCD$ is at least 74 cm² but less than 100 cm², form a simultaneous inequality in x and solve it.
- Hence, find the maximum area of $ABCD$.



- 11 The size of each interior angle of a regular n -sided polygon is between 130° and 140° .
- Form a pair of simultaneous inequality in n and solve it.
 - Hence, name the regular polygon.
- 12 The general term of a sequence is $T_n = an + b$. The 5th term in the sequence is 16 and the sum of the 6th term and 8th term is 52.
- Find the values of a and of b .
 - The p th term is greater than 101 and at most 130.
 - Form an inequality in terms of p .
 - Hence, list all possible values of p .