GHS Sorted Past Paper - MC
S5-02 Inequalities in One Unknown

1. [20 - 21 S5 Final Exam - 08] (59%)

8. The solution of $x-\frac{x-1}{3}>5$ or $13-x<-1$ is

A. $x>7$.
B. $x>8$.
C. $x>12$.
D. $x>14$.

2. [20 - 21 S5 Final Exam - 41] (34%)

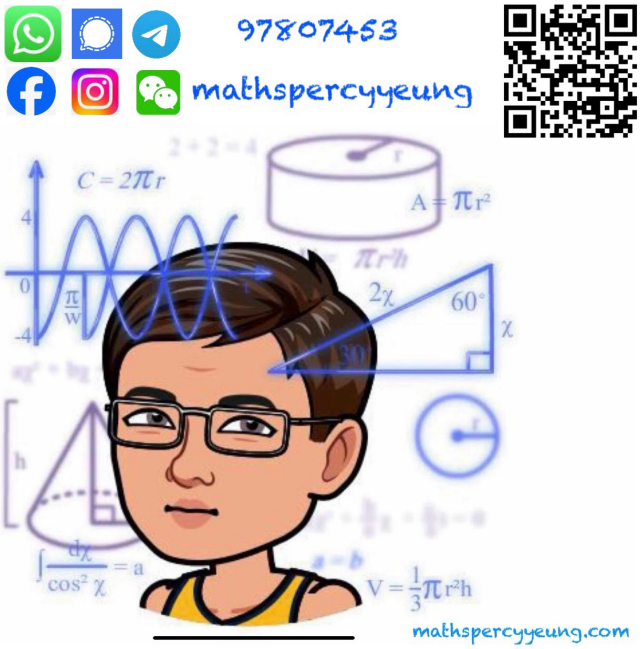
41. Let k be an integer. Find the number of possible values of k such that $-x^2+kx+5x+k<0$ for any real number x.

A. 8
B. 9
C. 10
D. 11

3. [20 - 21 S5 Mid-year Exam - 07] (76%)

7. The solution of $\frac{5x-1}{6}>4$ or $11<3-2(5-x)$ is

A. $x>5$.
B. $x>9$.
C. $5<x<9$.
D. $x<5$ or $x>9$.



4. [20 - 21 S5 Mid-year Exam - 08] (74%)

8. If 1 is a root of the quadratic equation $x^2 + 4x + m = 0$, solve $x^2 + 4x + m < 27$.

A. $x < -8$ or $x > 4$
B. $x < -4$ or $x > 8$
C. $-8 < x < 4$
D. $-4 < x < 8$

5. [21 - 22 S5 Final Exam - 05] (62%)

5. How many non-negative integers satisfy $-29 \le 6y - 5 < 4y + 1$?

A. 0
B. 1
C. 2
D. 3

6. [21 - 22 S5 Mid-year Exam - 10] (94%)

10. The solution of $3x - 7 \ge 5x$ or $6x - 8 > x + 4$ is

A. $x \le -\frac{7}{2}$.
B. $x \le \frac{12}{5}$.
C. $-\frac{7}{2} \le x < \frac{12}{5}$.
D. $x \le -\frac{7}{2}$ or $x > \frac{12}{5}$.

7. [21 - 22 S5 Mid-year Exam - 16] (42%)

16. If a and b are real numbers such that $\frac{a}{b} > 1$, which of the following must be true?

I. $a > b$
II. $a^2 > b^2$
III. $a^2 > ab$

A. I and II only
B. I and III only
C. II and III only
D. I, II and III

8. [22 - 23 S5 Final Exam - 08] (80%)

8. The solution of $2x - 9 > -x - 3$ or $7 - 5x \geq -3$ is

A. $x \leq 2$.
B. $x > 2$.
C. $x \neq 2$.
D. all real values of x.

9. [22 - 23 S5 Final Exam - 42] (42%)

42. Let k be a constant. Find the range of values of k such that $-x^2 + 2kx - k < 0$ for any real number x.

A. $k < 0$ or $k > 1$
B. $k < -1$ or $k > 0$
C. $0 < k < 1$
D. $-1 < k < 0$

10. [22 - 23 S5 Mid-year Exam - 16] (79%)

16. If $h < k < 0$, which of the following must be true?

I. $-h + k > 0$
II. $h^2 < k^2$
III. $h^3 < k^3$

A. I only
B. II only
C. I and III only
D. II and III only

11. [22 - 23 S5 Mid-year Exam - 17] (70%)

17. The least positive integer satisfying the compound inequality $2(x+7) > 12$ or $x < 4$ is

A. 0.
B. 1.
C. 2.
D. 3.

12. [22 - 23 S5 Mid-year Exam - 31] (46%)

31. Solve $28x - 4x^2 < 49$.

A. No solution.
B. $x = 3.5$.
C. $x < 3.5$ or $x > 3.5$.
D. All real values of x.

13. [22 - 23 S5 Mid-year Exam - 32] (51%)

32. Let k be a constant. Find the range of values of k such that $0.25x^2 - (k-1)x + (2k^2 - 7) > 0$ for any real number x.

A. $-4 < k < 2$
B. $-2 < k < 4$
C. $k < -4$ or $k > 2$
D. $k < -2$ or $k > 4$

14. [23 - 24 S5 Mid-year Exam - 20] (36%)

20. Let k be a constant. Find the range of values of k such that $x^2-2kx+k+3\geq -9$ for any real number x.

A. $k\leq -4$ or $k\geq 3$
B. $k\leq -3$ or $k\geq 4$
C. $-4\leq k\leq 3$
D. $-3\leq k\leq 4$

15. [20 - 21 S6 Mock Exam - 15] (76%)

15. The solution of $-3(x-1)>26$ or $\frac{x+1}{2}<-3$ is

A. $x<-\frac{23}{3}$.
B. $x>-\frac{23}{3}$.
C. $x<-7$.
D. $-\frac{23}{3}<x<-7$.

16. [21 - 22 S6 Mock Exam - 09] (82%)

9. The greatest integer satisfying the compound inequality $-2(x-3)+5>13$ or $\frac{9-x}{6}>1$ is

A. –21.
B. –2.
C. 1.
D. 2.

17. [21 - 22 S6 Mock Exam - 37] (36%)

37. Find the range of values of m such that $2x^2+2(m-1)x+m+3\geq 0$ for all real values of x.

A. $m\leq -5$ or $m\geq 1$
B. $m\leq -1$ or $m\geq 5$
C. $-5\leq m\leq 1$
D. $-1\leq m\leq 5$

18. [21 - 22 S6 Standardized Test - 03] (82%)

3. The solution of $-7x < 6 - 4x$ or $5(x + 1) > 21 + x$ is

A. $x > -2$.
B. $x > 4$.
C. $-2 < x < 4$.
D. $x < -2$ or $x > 4$.

19. [22 - 23 S6 Mock Exam - 09] (82%)

9. The solution of $\frac{3-4x}{5} \geq -x+1$ or $2x - 1 > -5$ is

A. $x > -2$.
B. $x < -2$.
C. $x \geq 2$.
D. $x \leq 2$.

20. [22 - 23 S6 Standardized Test - 02]

2. The solution of $x - \frac{x+3}{2} > 6 - x$ or $3 - x < -4$ is

A. $x < 5$.
B. $x > 5$.
C. $x < 7$.
D. $x > 7$.

21. [22 - 23 S6 Standardized Test - 08]

8. Let k be a constant. Find the ranges of values of k such that $x^2 + kx - k + 3 > 0$ for all real number x.

A. $-6 < k < 2$
B. $-2 < k < 6$
C. $k < -6$ or $k > 2$
D. $k < -2$ or $k > 6$

22. [23 - 24 S6 Mock Exam - 09] (59%)

9. Solve $\frac{1}{5}(3x+8)>1$ or $5-x\geq 2$.

A. $x<-1$ or $x\geq 3$
B. $-1<x\leq 3$
C. All real values of x.
D. There is no real solution.

23. [23 - 24 S6 Standardized Test - 04] (98%)

4. The solutions of $9x>3(2x+5)$ and $51-4x>7$ are

A. $x>5$.
B. $x<11$.
C. $5<x<11$.
D. $x<5$ or $x>11$.

24. [23 - 24 S6 Standardized Test - 13] (56%)

13. Let $f(x)=(-x-3)^2-16$. Which of the following statements must be true?

I. The y-intercept of the graph of $y=f(x)$ is –16.
II. The x-coordinate of the vertex of the graph of $y=f(x)$ is –3.
III. The solution of $f(x)<0$ is $-7<x<1$.

A. I only
B. II only
C. I and III only
D. II and III only

GHS Sorted Past Paper - Conventional Questions
S5-02 Inequalities in One Unknown

1. [20 - 21 S5 Final Exam - 04]

4. **(a)** Find the range of values of x which satisfy both

$$\frac{5(x-3)}{4}+9 \geq 7(x-5) \text{ and } x+5>0.$$

(b) How many negative integers satisfy both inequalities in **(a)**?

(4 marks)

2. [20 - 21 S5 Final Exam - 15]

15. It is given that the base and the height of a triangle are $(k-8)$ cm and $(3k+5)$ cm respectively, where k is an integer. If the area of the triangle is greater than 16 cm^2. Find the minimum value of k. **(3 marks)**

3. [20 - 21 S5 Mid-year Exam - 03]

3. **(a)** Solve the inequality $-2(x+4) \geq \frac{7x+3}{9}$.

(b) How many integer(s) satisfy both inequalities $-2(x+4) \geq \frac{7x+3}{9}$ and $8x+32>0$?

(4 marks)

4. [21 - 22 S5 Final Exam - 04] (85%)

4. Consider the compound inequality

$$-5(x-3) \geq x+3 \quad \text{or} \quad 4x<-32 \quad \ldots\ldots\ldots\ldots (*)$$

(a) Solve (*).

(b) Write down the greatest integer satisfying (*). **(4 marks)**

5. [21 - 22 S5 Mid-year Exam - 06] (87%)

6. **(a)** Find the range of values of x which satisfy both $5(x-3) \leq \frac{x+8}{2}$ and $9-2x>5$.

(b) Write down the greatest integer satisfying both inequalities in **(a)**.

(4 marks)

6. [21 - 22 S5 Mid-year Exam - 16] (36%)

16. The height, the lower base and the upper base of a trapezium are $(x+1)$ m, $(2x+3)$ m and $(15-x)$ m respectively, where x is an integer. If the area of the trapezium is at least 130 m^2, find the possible value(s) of x. **(4 marks)**

7. [22 - 23 S5 Final Exam - 04] (89%)

4. Solve the compound inequality $\frac{2(4x+1)}{3}-6>4(x-1)$ and $x+4\geq 0$. **(3 marks)**

8. [22 - 23 S5 Mid-year Exam - 07] (82%)

7. **(a)** Find the range of values of x which satisfy both

$$\frac{4(2-x)}{3}-1>2x+5 \quad \text{and} \quad 2x+11\geq 0$$

(b) How many negative integers satisfy both inequalities in **(a)**?

(4 marks)

9. [22 - 23 S5 Mid-year Exam - 17] (58%)

17. Solve the compound inequality

$$\left(\frac{1}{4}\right)^x>8 \quad \text{or} \quad (2x+1)(x+1)<21$$ **(5 marks)**

10. [23 - 24 S5 Mid-year Exam - 04] (97%)

4. Consider the compound inequality

$$4x+1\leq\frac{x+16}{2} \text{ and } 5x\geq 2x-9 \quad \text{.....(*)}.$$

(a) Solve (*).

(b) How many negative integers satisfy (*)?

(4 marks)

11. [24 - 25 S5 Mid-year Exam - 04] (95%)

4. **(a)** Find the range of values of x which satisfy both $\frac{2x-1}{4}-1\leq 3x$ and $2x-1>5$.

(b) Write down the least integer satisfying both inequalities in **(a)**.

(4 marks)

12. [24 - 25 S5 Mid-year Exam - 17] (61%)

17. The length and the width of a rectangle are $(2x-9)$ cm and $(x-5)$ cm respectively. If the area of the rectangle is less than 21 cm^2, find the number of possible integral values of x.

(3 marks)

13. [20 - 21 S6 Mock Exam - 04]

4. **(a)** Find the range of values of x which satisfy both $\frac{-5-5x}{6} < 3(x+1)$ and $2x-7<0$.

(b) Write down the least integer which satisfies both inequalities in **(a)**. **(4 marks)**

14. [21 - 22 S6 Mock Exam - 04] (94%)

4. **(a)** Find the range of values of x which satisfy both $5(x-3) \leq \frac{x+6}{2}$ and $2-x<5$.

(b) How many positive integers satisfy both inequalities in **(a)**? **(4 marks)**

15. [22 - 23 S6 Mock Exam - 04] (94%)

4. **(a)** Find the range of values of x which satisfy both $\frac{2x+6}{3} < 2(x+5)$ and $5x+15 \leq 0$.

(b) Write down the least integer which satisfies both inequalities in **(a)**. **(4 marks)**

16. [23 - 24 S6 Mock Exam - 04] (86%)

4. Consider the compound inequality

$$2x+3 > \frac{1}{6}(8x+5) \quad \text{and} \quad 5x+12 \geq 0 \quad \ldots\ldots\ldots\ldots (*)$$

(a) Solve (*).

(b) Write down the least integer satisfying (*).

(4 marks)