ALGEBRAIC INEQUALITIES

(e) Solve $5x - 6 < 30$. [2]

$5x < 30 + 6$

$5x < 36$

$x < \frac{36}{5}$

$x < 7\frac{1}{5}$

(b) Solve the inequality $15t < 4t + 7$.

$15t - 4t < 7$

$11t < 7$

$t < \frac{7}{11}$

[2]

(b) Solve $6x < 2x + 24$.

$6x - 2x < 24$

$4x < 24$

$x < \frac{24}{4}$ $\quad x < 6$

[2]

[2]

(c) Solve $3 - 2n > 4n - 9$.

$-2n - 4n > -9 - 3$

$-6n > -12$ $\quad$ * Dividing by negative number, inequality sign reverses *

$n < \frac{-12}{-6}$ $\quad n < 2$

[2]

[2]

(b) Solve the inequality $5(t - 2) > 3t + 14$.

$5t - 10 > 3t + 14$

$5t - 3t > 14 + 10$

$2t > 24$

$t > \frac{24}{2}$

$t > 12$

[3]

Examiner only

(d) Solve the inequality $9x + 5 < 77$. [2]

$9x < 77 - 5$

$9x < 72$

$x < \frac{72}{9}$

$x < 8$

(e) Write down the smallest whole number that satisfies the inequality $4x > 45$. [2]

$4x > 45$

$x > \frac{45}{4}$

$x > 11\frac{1}{4}$

Smallest whole number is 12

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12. (a) Solve the inequality

$7x - 3 < 14 + 4x$.

$7x - 4x < 14 + 3$

$3x < 17$

$x < \frac{17}{3}$

$x < 5\frac{2}{3}$

[2]

(b) Write down the largest whole number that satisfies this inequality.

5

[1]

(0184/7)

(c) Solve the inequality $45 + y < 7y - 3$.
Write your answer in the form $y > a$ where a is a whole number.

$4 - 7y < -3 - 45$

$-6y < -48$ ÷ by negative number, reverses inequality

$y > \frac{-48}{-6}$

$y >$ 8

[3]

15. *(a)* Solve the inequality

$$13 - 3x \geqslant 22 - 7x.$$

$-3x + 7x \geqslant 22 - 13$

$4x \geqslant 9$

$x \geqslant \frac{9}{4}$ $\quad x \geqslant 2\frac{1}{4}$

[2]

(b) Write down the smallest whole number that satisfies this inequality.

3

[1]

11. *(a)* Solve the inequality

$$5x + 3 > 24 - 2x.$$

$5x + 2x > 24 - 3$

$7x > 21$

$x > \frac{21}{7}$

$x > 3$

[2]

(b) Write down the smallest whole number that satisfies this inequality.

4

[1]

10. *(a)* Rearrange the inequality $3 - 3n < 9 - 5n$ into the form $n <$ *some number*.

$-3n + 5n < 9 - 3$

$2n < 6$

$n < \frac{6}{2}$ $\quad n < 3$

[2]

(b) Given that n also satisfies the inequality $3n > -6$, write down all the integer values of n that satisfy both inequalities.

whole numbers

$3n > -6$

$n > \frac{-6}{3}$

$n > -2$

$-1, 0, 1, 2$

[2]