DOUBLE TUTORIAL 5

First Hour

Question 1. Solve inequalities. Illustrate the answer on the number line.

(a) $x + 7 \geq 6$,

(b) $13 + x < -4$.

Question 2. Solve inequalities. Illustrate the answer on the number line.

(a) $5x > \frac{7}{9}$,

(b) $\frac{1}{2}x \leq -4$.

Question 3. Solve inequalities. Illustrate the answer on the number line.

(a) $-x > 3$,

(b) $-5x < -15$.

Question 4. Solve inequalities. Illustrate the answer on the number line.

(a) $9 + 10x \geq -13$,

(b) $-\frac{4}{5}x + 3 \leq 4$.

Question 5. Solve inequality.
$$0.8x + x^2 - 3 < -0.2x + x^2 - 10.$$

Question 6. Solve inequalities. Illustrate the answer on the number line.
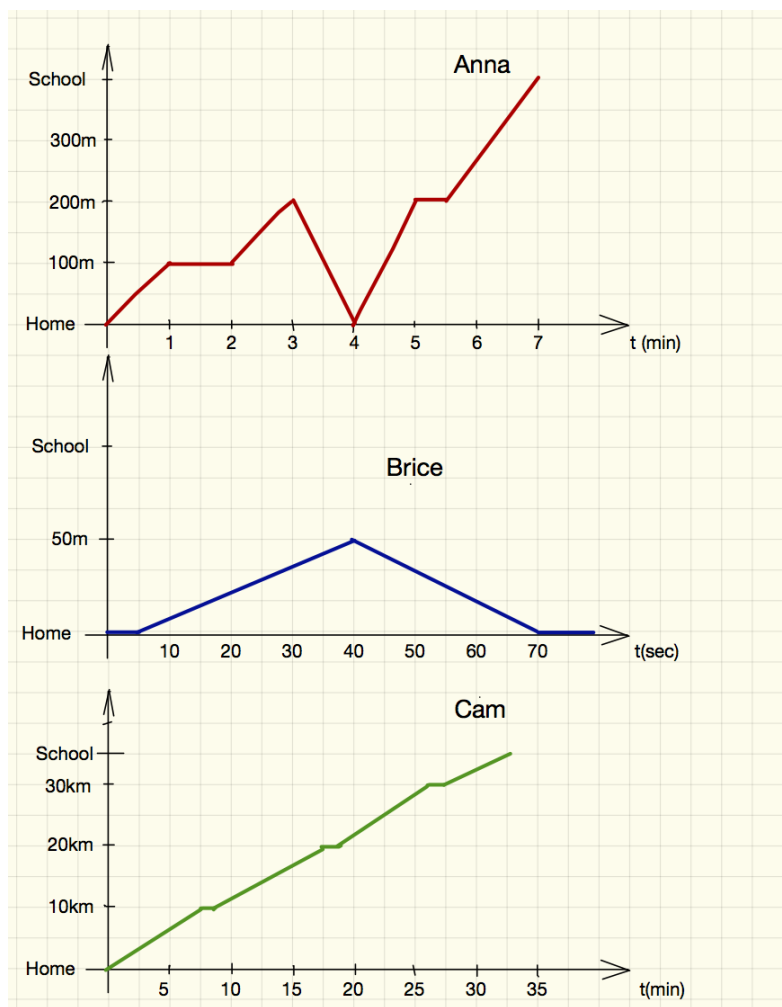
(a) $|x - 6| < 2$,

(b) $|3x| \leq 3$,

(c) $|x + 1| > 2$.

Question 7. If the planned length of a construction part is $80\,cm$, and the greatest acceptable error is $1.5\,cm$, find the tolerance interval.

Second Hour

Question 1. The three graphs below describe the way to school for Anna, Brice and Cam. They depict the distance as functions of time. Answer the following questions.


(i) Two students walked to school, and one was catching the bus. Who came to school by bus?

(ii) How many stops did the bus make? (Do not include the start and the end stops.)

(iii) How long did it take for each of the students to get to school?

(iv) Whose way to school is the shortest? the longest?
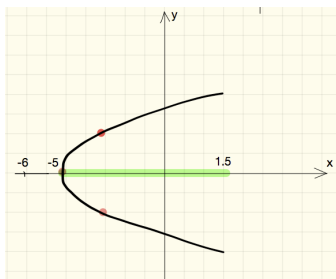
(v) What are the domains and ranges of these functions?

(vi) Discuss each of the graphs.

Question 2.   Use the vertical line test to decide if the graph on the given domain represents a function or not.
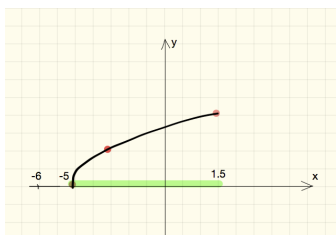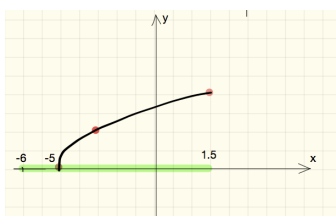
(i) The domain is the interval $[-3, 1]$.
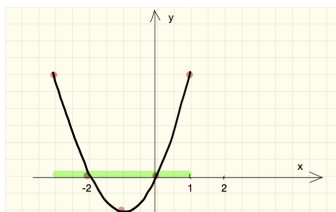
(ii) The domain is the interval $[-5, 1.5]$.

(iii) The domain is the interval $[-5, 1.5]$.

(iv) The domain is the interval $[-6, 1.5]$.

Question 3.   Calculate the value of the function $f(x)$ at the given points.

(i) $f(x) = 2x + 5$ at $x = -7$,

(ii) $f(x) = x^2$ for $x = 3$ and $x = -3$,

(iii) $f(x) = \frac{3}{x-4}$ for $x = 6$,

(iv) $f(x) = \frac{1}{2} + 3(x - \frac{3}{2}) - 8x^2$ for $x = 0$.