chapter 13

Match each situation with the appropriate graph.

_____ A car returns home, traveling at a constant rate.

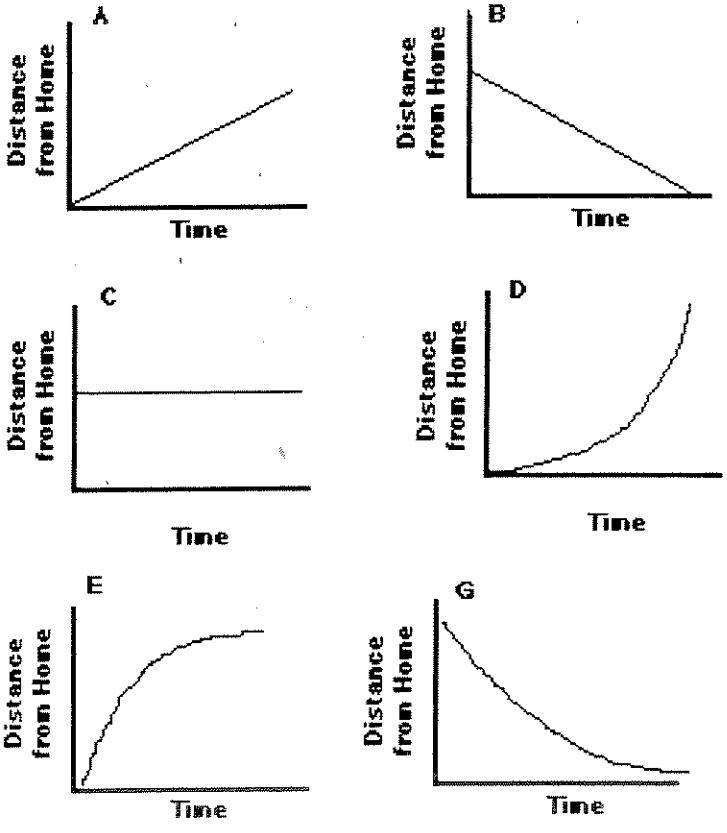
_____ A car has a flat tire, several miles from home.

_____ A car leaves home, gradually going faster and faster.

_____ A car returns home, quickly slowing its speed.

_____ A car leaves home traveling at a constant rate.

_____ A car slows down as it pulls into the library parking lot.



Match each situation with the appropriate graph.

B A car returns home, traveling at a constant rate.

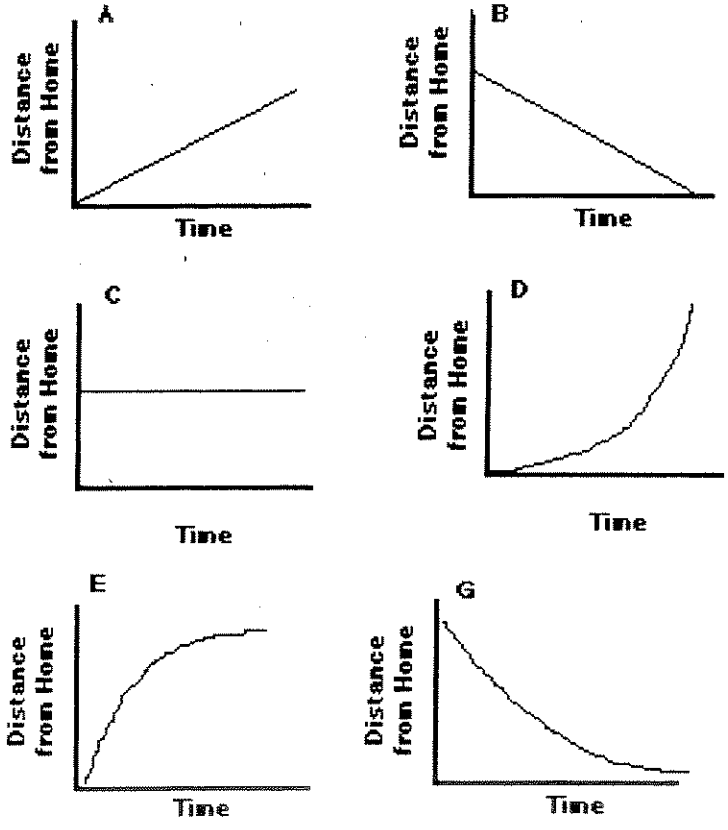
C A car has a flat tire, several miles from home.

D A car leaves home, gradually going faster and faster.

G A car returns home, quickly slowing its speed.

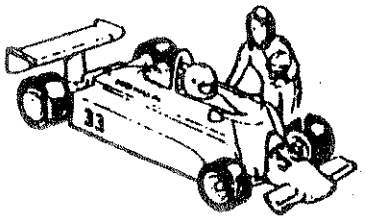
A A car leaves home traveling at a constant rate.

E A car slows down as it pulls into the library parking lot.



## A4 SKETCHING GRAPHS FROM PICTURES

### 1. Motor Racing



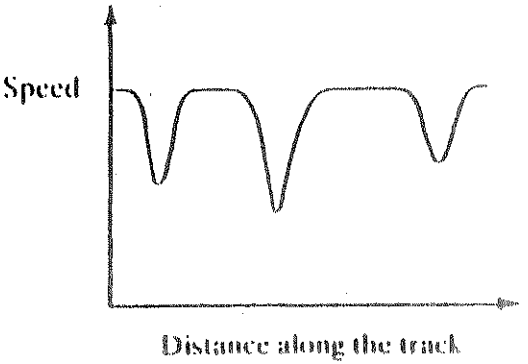

**How do you think the speed of a racing car will vary as it travels on the *second lap* around each of the three circuits drawn below? (S = starting point)**


Circuit 1 Circuit 2 Circuit 3

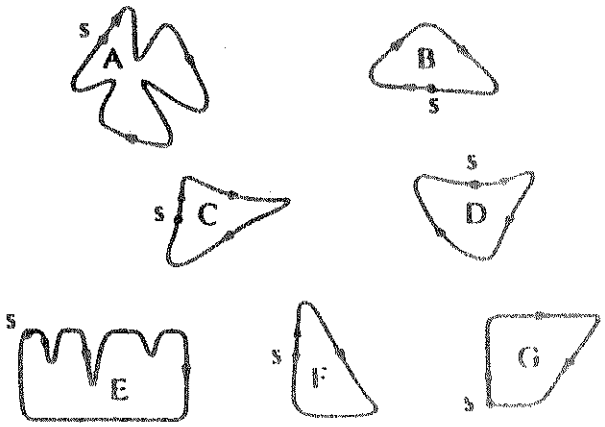
**Explain your answer in each case both in words and with a sketch graph. State clearly any assumptions that you make.**


**Compare your graphs with those produced by your neighbours. Try to produce three graphs which you all agree are correct.**

**The graph below shows how the speed of a racing car varies during the second lap of a race.**



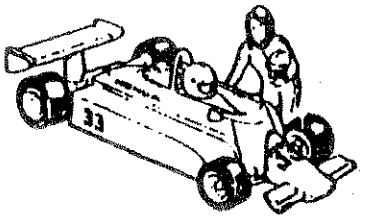

**Which of these circuits was it going round?**




**Discuss this problem with your neighbours.**
**Write down your reasons each time you reject a circuit.**

## A4 SKETCHING GRAPHS FROM PICTURES

### 1. Motor Racing



How do you think the speed of a racing car will vary as it travels on the *second lap* around each of the three circuits drawn below? (S = starting point)

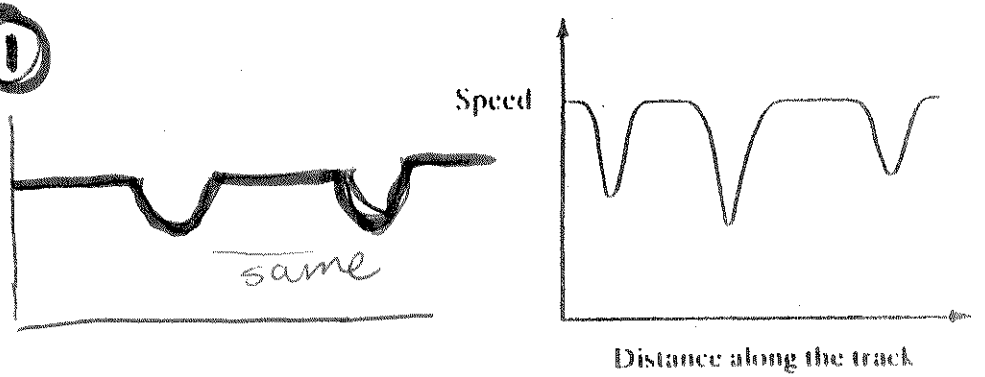

Circuit 1 Circuit 2 Circuit 3

Explain your answer in each case both in words and with a sketch graph. State clearly any assumptions that you make.


Compare your graphs with those produced by your neighbours. Try to produce three graphs which you all agree are correct.

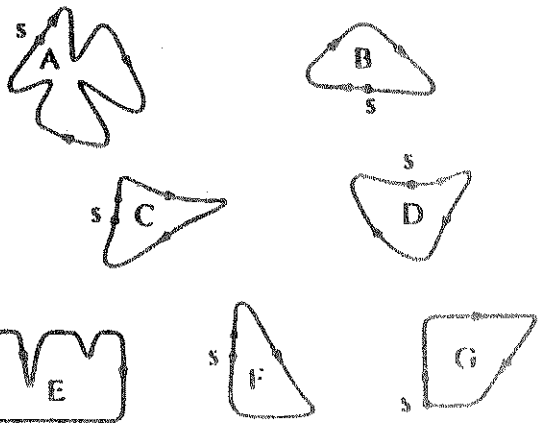
The graph below shows how the speed of a racing car varies during the second lap of a race.

1

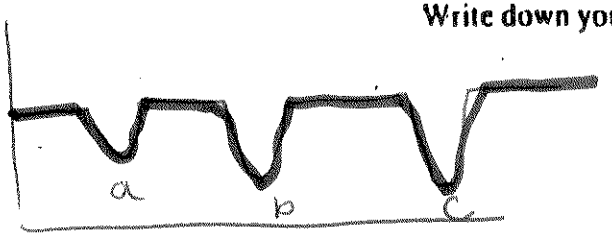



Which of these circuits was it going round?

2

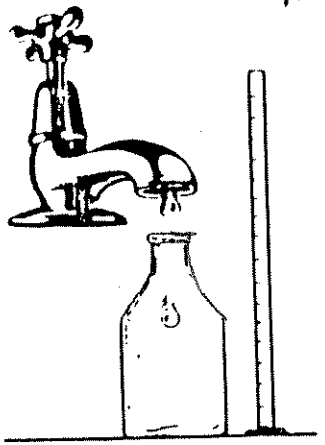



3



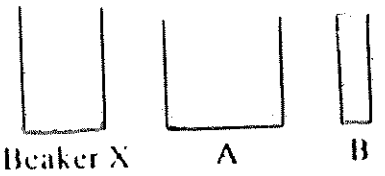

Discuss this problem with your neighbours.
Write down your reasons each time you reject a circuit.

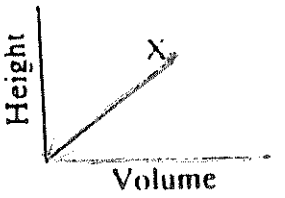
## 9. Filling Bottles



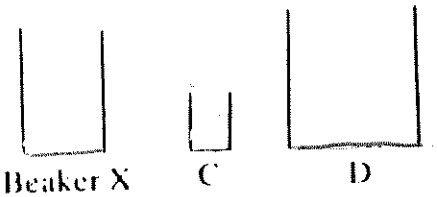
In order to callibrate a bottle so that it may be used to measure liquids, it is necessary to know how the height of the liquid depends upon the volume in the bottle.

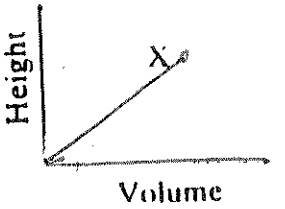
The graph below shows how the height of liquid in beaker X varies as water is steadily dripped into it. Copy the graph, and *on the same diagram*, show the height-volume relationship for beakers A and B.



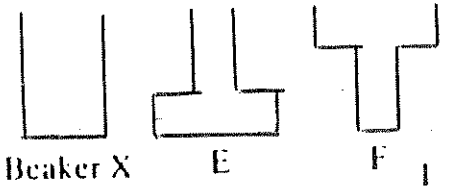



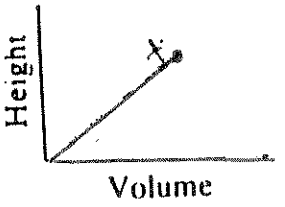

Sketch two more graphs for C and D . . .




And two more for E and F . . .



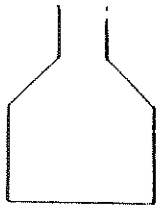



Here are 6 bottles and 9 graphs.

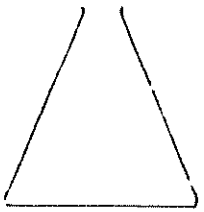
Choose the correct graph for each bottle.

Explain your reasoning clearly.

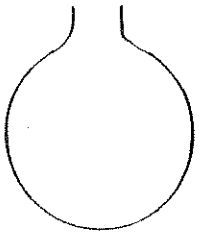
For the remaining 3 graphs, sketch what the bottles should look like.



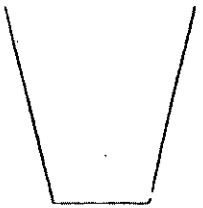
Ink bottle



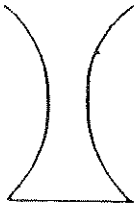
Conical flask



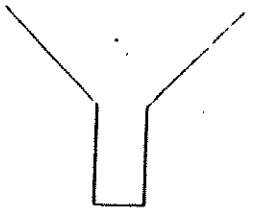
Evaporating flask



Bucket

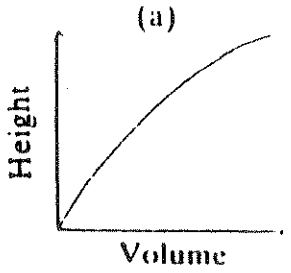


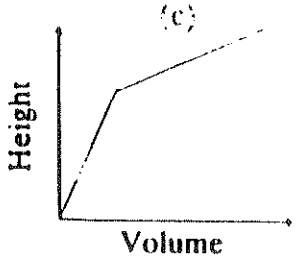
Vase

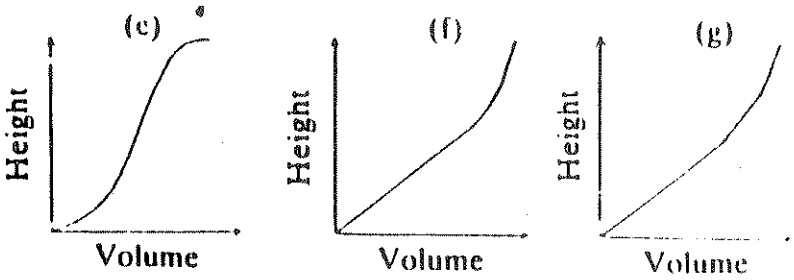


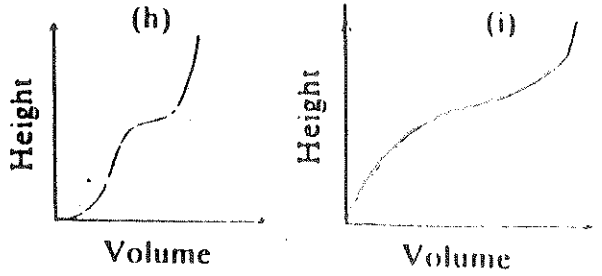
Plugged funnel





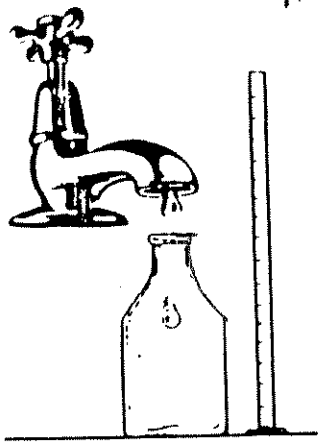



Key

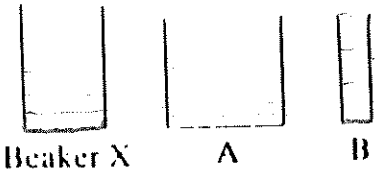
## A5 LOOKING AT GRADIENTS

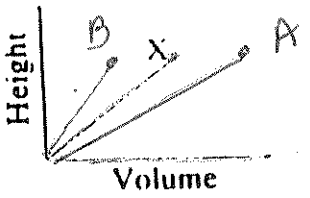
### 9. Filling Bottles



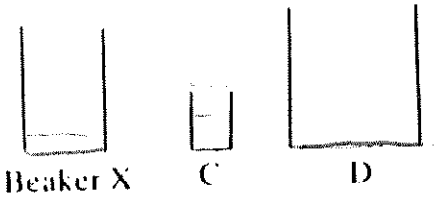
In order to callibrate a bottle so that it may be used to measure liquids, it is necessary to know how the height of the liquid depends upon the volume in the bottle.

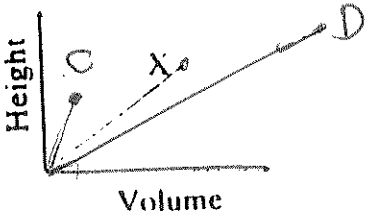
The graph below shows how the height of liquid in beaker X varies as water is steadily dripped into it. Copy the graph, and *on the same diagram*, show the height-volume relationship for beakers A and B.



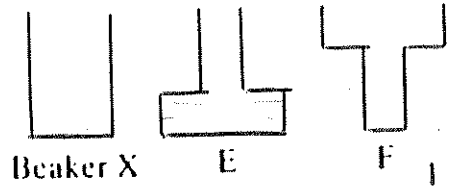



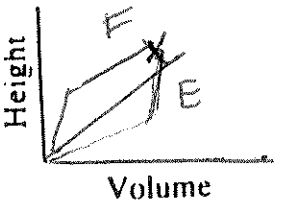

Sketch two more graphs for C and D . . .




And two more for E and F . . .



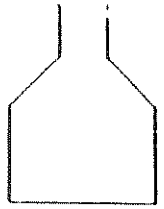



Here are 6 bottles and 9 graphs.

Choose the correct graph for each bottle.

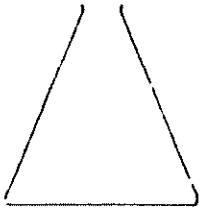
Explain your reasoning clearly.

For the remaining 3 graphs, sketch what the bottles should look like.



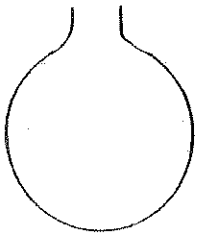
f

Ink bottle



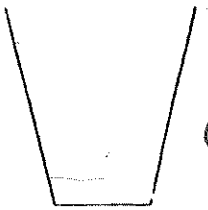
d

Conical flask



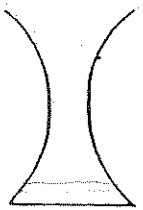
i

Evaporating flask



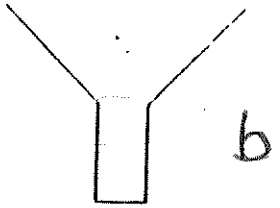
a

Bucket



e

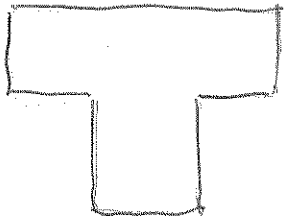
Vase



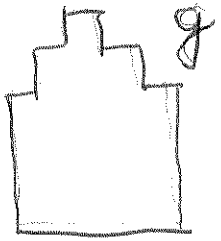
b

Plugged funnel

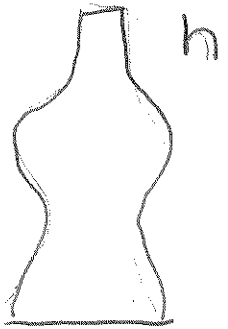




c

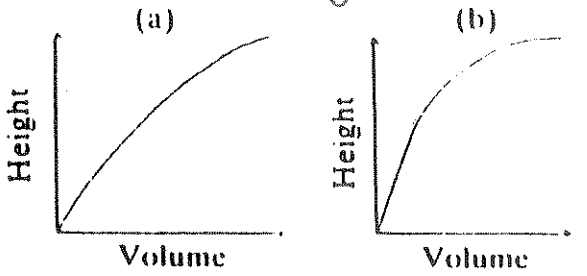


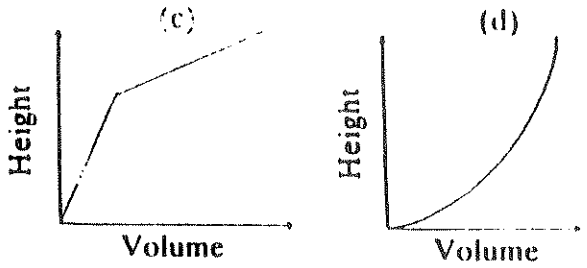
g

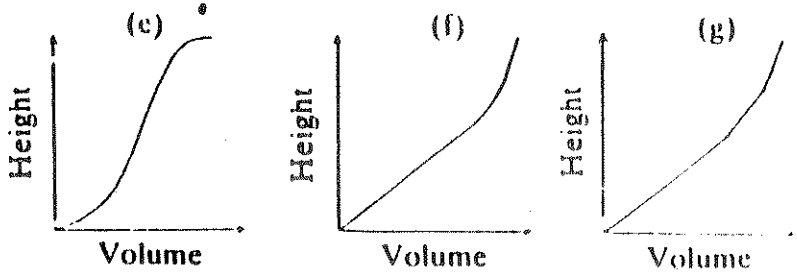


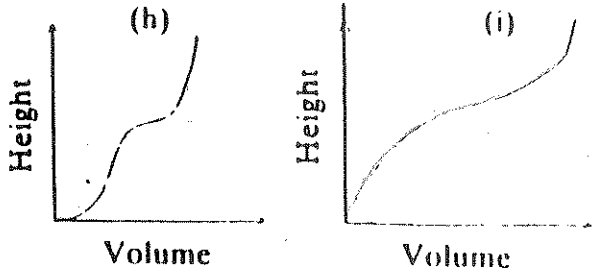
h

Key



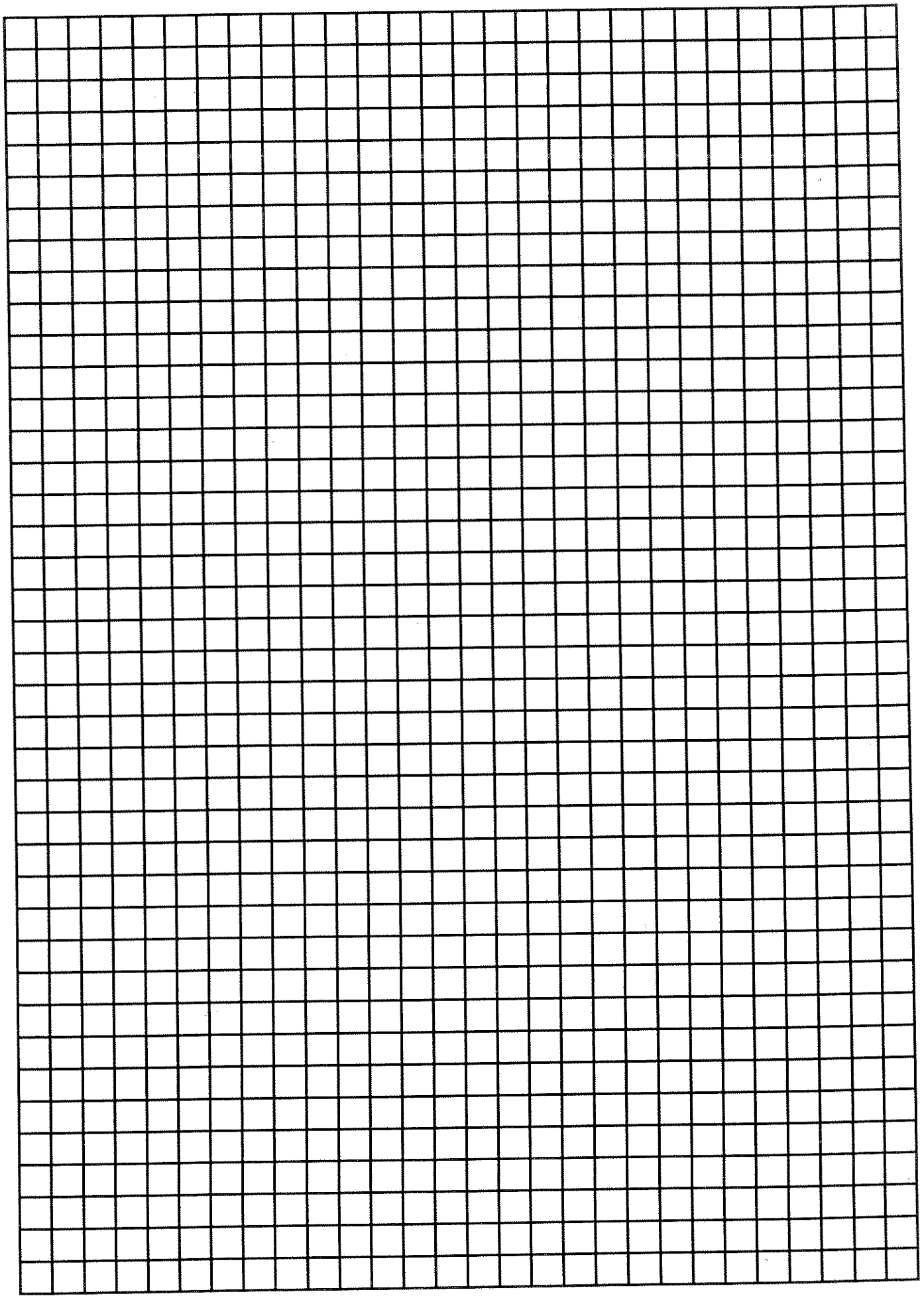



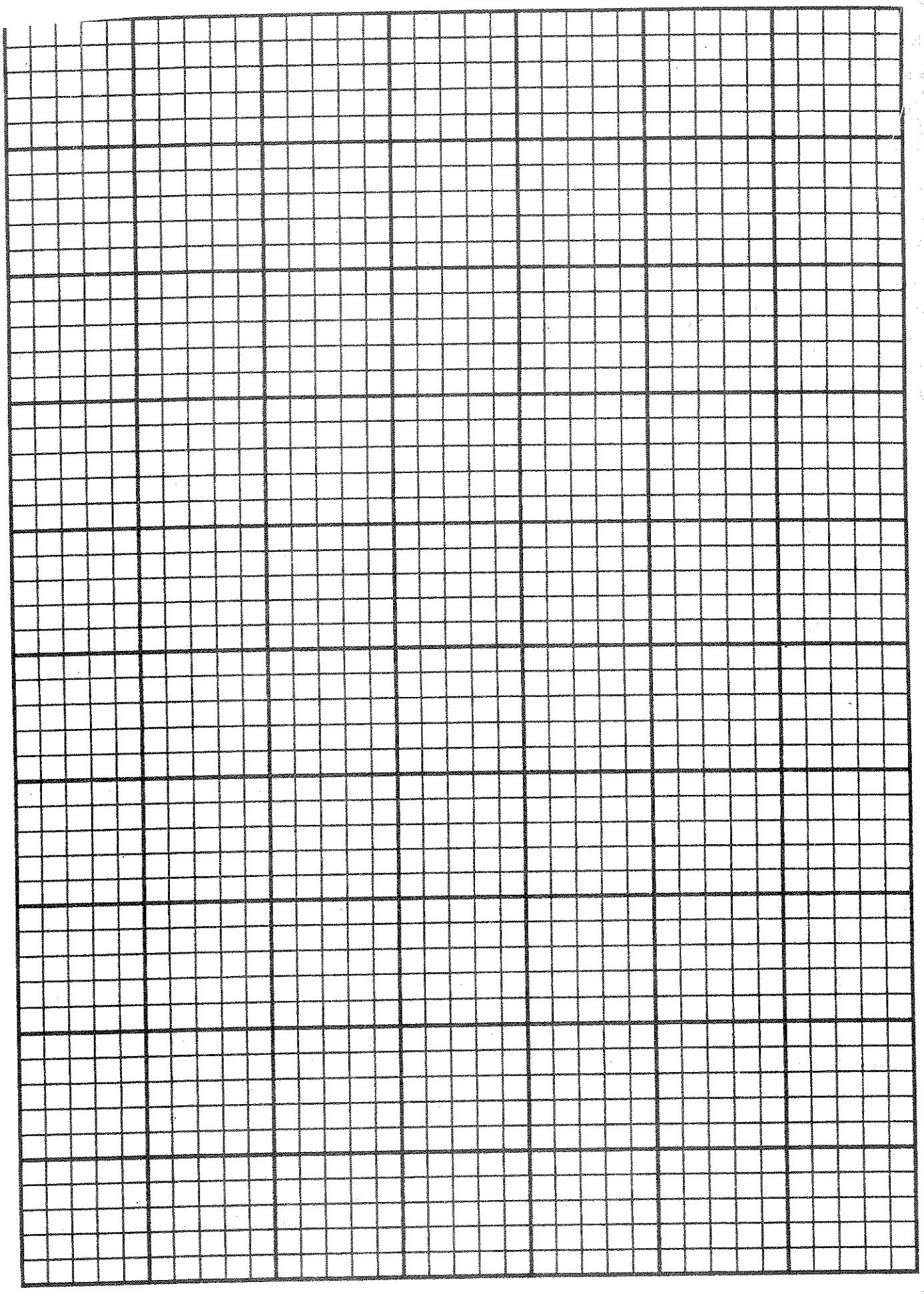





18





MATH 313 – REVIEW Chapter 13

Create distance from home (position) / time graphs
Create total distance / time graphs
Writing algebraic equations describing relationships
Create speed / time graphs - (cartoon character vs. real life)
Writing story problems to match graphs
Matching graphs to story problems
"Real life" graphs (i.e. flask problem, roller coaster problem, etc.)
Comparing graphs to each other
Graphing position, total distance and speed graphs together for a given situation
Explaining what is happening in a given graph
Graphing errors and interpretations