

# Everyday Situations 1

## A. Plumber

A plumber charges a fixed fee for coming to your house, then charges a fixed amount per hour on top of this.

$x$  = the time the job takes in hours.

$y$  = the total cost of the plumber's time in dollars.



*How much does the plumber charge for a 3-hour job?*

## B. Cycling

A cyclist travels along a direct route from town A to town B.

$x$  = the distance of the cyclist from town A in miles.

$y$  = the distance of the cyclist from town B in miles.



*How far apart are the towns?*

## C. Movie subscription

You get two movies free, but then you get charged at a fixed rate per movie.

$x$  = the number of movies seen.

$y$  = the total money spent in dollars.



*What is the fixed rate per movie?*

## D. Internet café

An internet café charges a fixed amount per minute to use the internet.

$x$  = the number of minutes spent on the internet.

$y$  = the cost of using the internet in dollars.



*How many minutes will \$8 buy?*

## Everyday Situations 2

### E. Cooling kettle

A kettle of boiling water cools in a warm kitchen.

$x$  = the time that has elapsed in minutes.

$y$  = the temperature of the kettle in degrees Celsius.



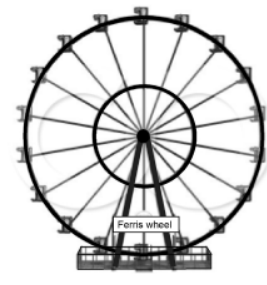
*What is the temperature of the room?*

### F. Ferris wheel

A Ferris wheel turns round and round.

$x$  = the time that has elapsed in seconds.

$y$  = the height of a seat from the ground in meters.



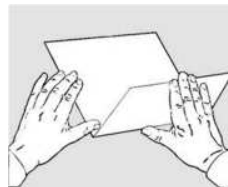
*How long does it take the Ferris wheel to turn once?*

### G. Folding paper

A piece of paper is folded in half. It is then folded in half again, and again...

$x$  = the number of folds.

$y$  = the thickness of the paper in inches.



*How thick would the paper be if you could fold it 10 times?*

### H. Speed of golf shot

A golfer hits a ball.

$x$  = the time that has elapsed in seconds.

$y$  = the speed of the ball in meters per second.



*When is the ball travelling most slowly?*

## Everyday Situations 3

### I. Test drive

A car drives along a test track.

$x$  = the average speed of the car in meters per second.

$y$  = the time it takes to travel the length of the track in seconds.



*How long is the track?*

### J. Balloon

A man blows up a balloon.

$x$  = the volume of air he has blown in cubic inches.

$y$  = the diameter of the balloon in inches.



*What is the diameter of the balloon when the man has blown in 1000 cubic inches?*

### K. Height of golf shot.

A golfer hits a ball.

$x$  = the time that has elapsed in seconds.

$y$  = the height of the ball in meters.



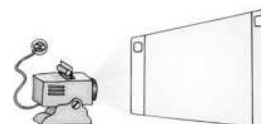
*When does the ball hit the ground?*

### L. Film projector

A film is shown on a screen using a small projector.

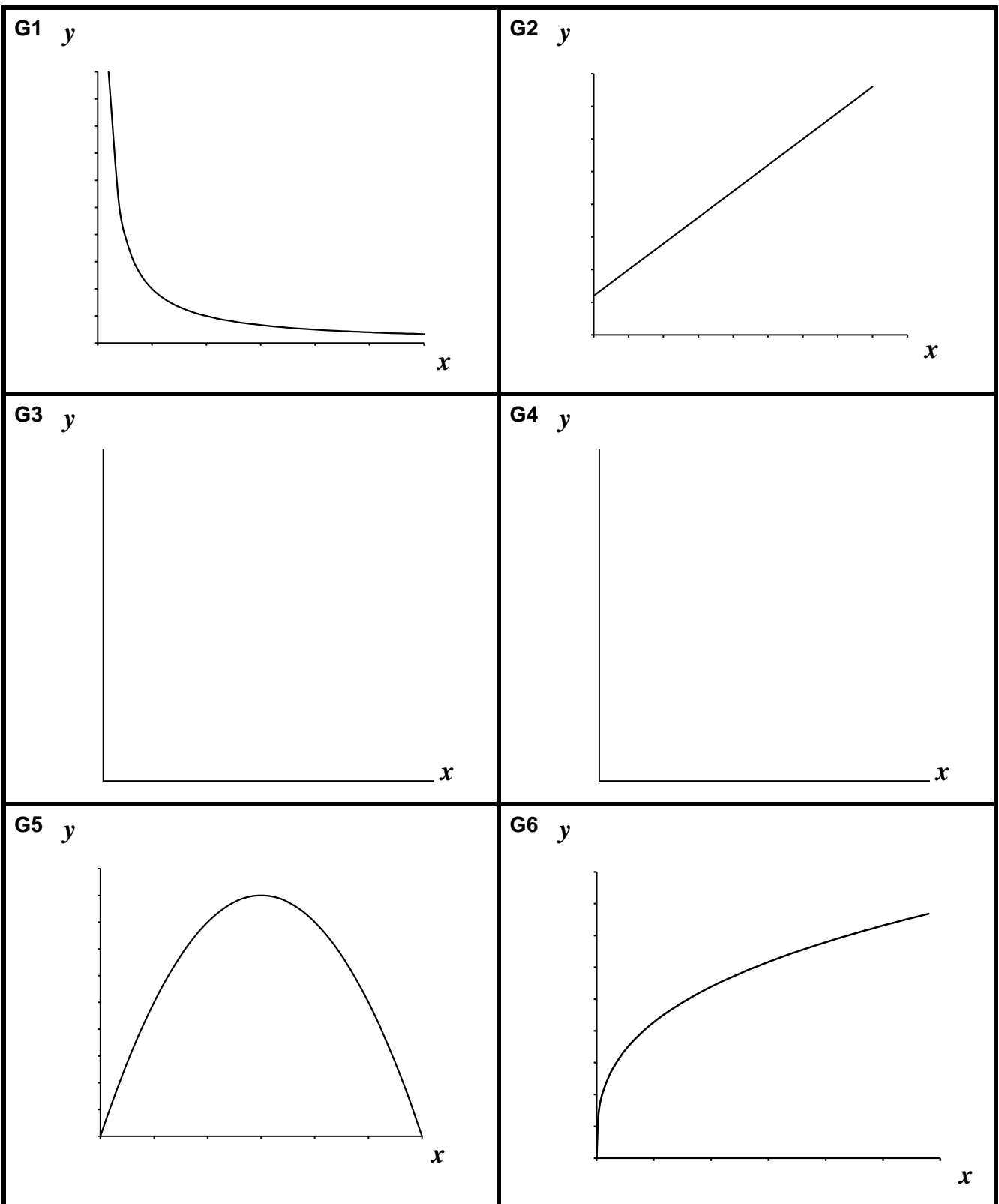
$x$  = the distance from the projector to the screen in feet.

$y$  = the area of the picture in square feet.

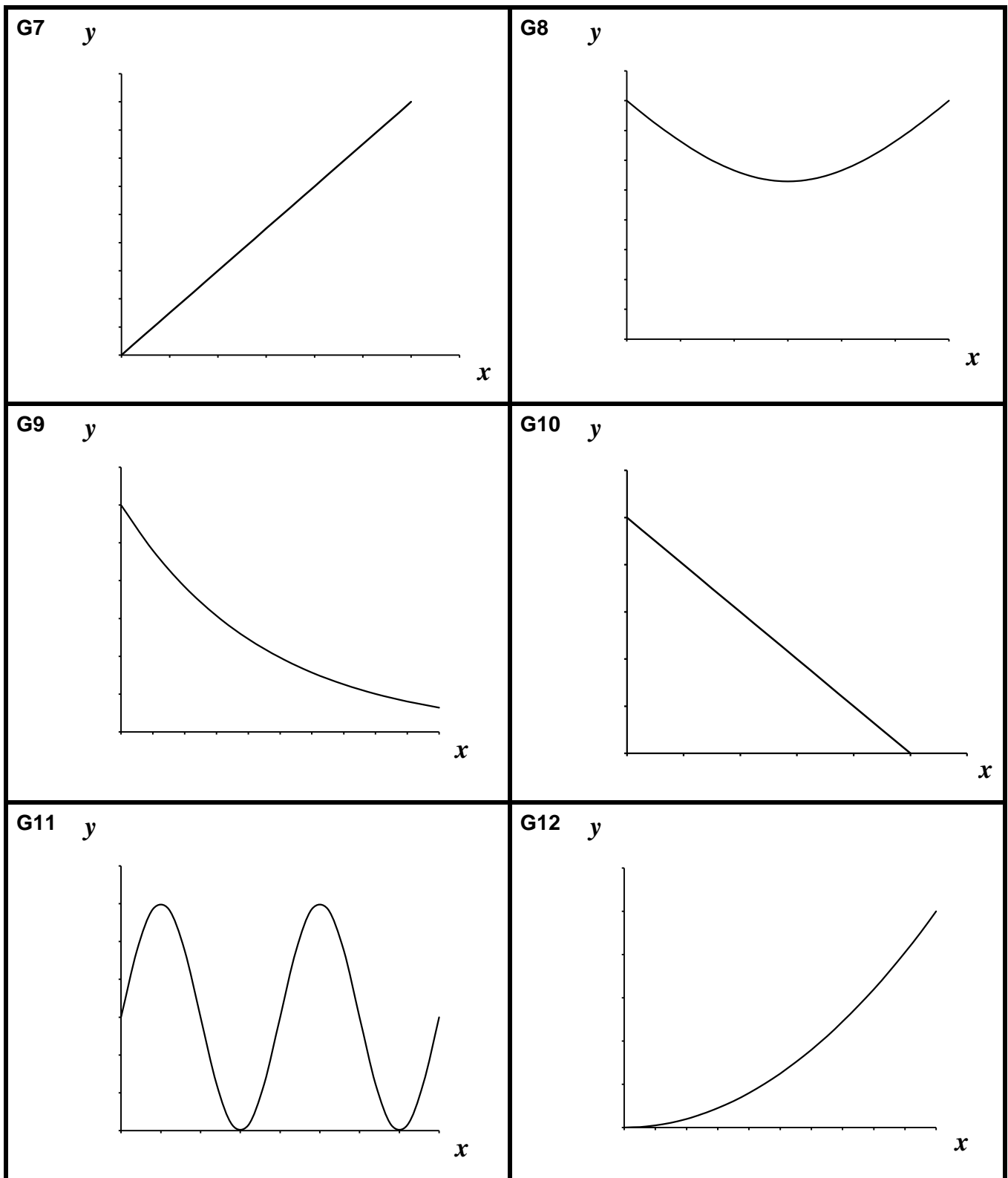


*How large is the picture when the screen is 10 feet away?*

# Graphs 1



# Graphs 2



## Algebraic Functions

A1 $y = 5x - 10$	A2 $y = \frac{3x}{4}$
A3 $y = 40x + 60$	A4 $y = -x + 100$
A5 $y = \frac{200}{x}$	A6 $y = \frac{5}{4} \sqrt[3]{x}$
A7 $y = 10\sqrt{(x-3)^2 + 7}$	A8 $y = \frac{1}{4} x^2$
A9 $y = 30x - 5x^2$	A10 $y = 30 + 30\sin(18x)$
A11 $y = 20 + 80 \times (0.27)^x$	A12 $y = \frac{2^x}{1000}$