

# Rate of Change Worksheet

1. Order the following salaries from smallest (1) to largest salary. (For ties, use the same ranking number.)

- \$6 per 3 hours: \_\_\_\_\_
- \$3 per half hour: \_\_\_\_\_
- \$1 per 0.25 hour: \_\_\_\_\_
- \$32 per 8-hour day: \_\_\_\_\_
- \$120 per 40-hour week: \_\_\_\_\_
- \$3 per 0.75 hours: \_\_\_\_\_

2. For each row, express the salary with the indicated salary units.

Salary	Dollars per hour	Dollars per $\frac{1}{2}$ hour	Dollars per 3 hours	Dollars per 8 hour day
\$6 per 5 hours				
\$2 per half hour				
\$3 per 0.25 hour				
\$72 per 8 hour day				
\$320 per 40 hour week				
\$6 per 0.6 hours				

3. Which units for salaries are most practical?

4. Use the following variable representations:

$x$  = minutes gone by

$y = f(x)$  = gallons of liquid in a tank at time  $x$

If we assume a constant flow of liquid for each row, fill in the following table.

$(x_1, y_1)$	$(x_2, y_2)$	Gallons per minute	Gallons per second	Gallons per hour
(2, 4)	(5, 16)			
(3, 5)	(13, 125)			
(2, 14)	(7, 34)			
(12, 30)	(14, 36)			

5. Use the following variable representations:

$x$  = hours gone by

$y = f(x)$  = odometer reading in miles at time  $x$

If the first column contains the formula for  $f$ , fill in the following table with two points of your choice  $(x_1, y_1)$  and  $(x_2, y_2)$  that will let us find each of the associated velocities in the given column.

Formula	Two pts for miles per hour	Two pts for miles per 1/2 hour	Two pts for miles per 5 hours	Two pts for miles per 24 hours
$y = 10x$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$
$y = 25x$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$
$y = 15x + 12$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$
$y = 30x + 36$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$
$y = 20x + 300$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$
$y = 3x + 4$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$	$(x_1, y_1) = ( \quad , \quad )$ $(x_2, y_2) = ( \quad , \quad )$

Use the results of the above table to express the velocity of each row in the units indicated for the given columns.

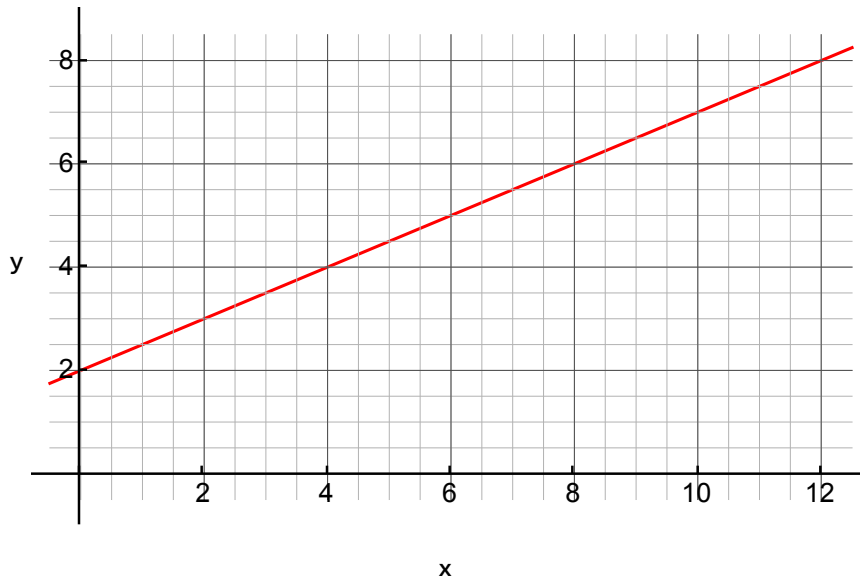
Formula	Velocity in miles per hour	Velocity in miles per 1/2 hour	Velocity in miles per 5 hours	Velocity in miles per 24 hours
$y = 10x$				
$y = 25x$				
$y = 15x + 12$				
$y = 30x + 36$				
$y = 20x + 300$				
$y = 3x + 4$				

6. Use the following variable representations:

$x$  = hours gone by

$y = f(x)$  = odometer reading in miles at time  $x$

The graph below represents the function  $f$



Fill in the following table with two points of your choice  $(x_1, y_1)$  and  $(x_2, y_2)$  that will let us find each of the associated velocities in the given column.

Two pts for miles per hour	Two pts for miles per 1/2 hour	Two pts for miles per 5 hours	Two pts for miles per 8 hours

Use the results of the previous table to express the *velocity* of each row in the units indicated for the given columns.

Velocity in miles per hour	Velocity in miles per 1/2 hour	Velocity in miles per 5 hours	Velocity in miles per 8 hours