

**GRADE 11 ESSENTIAL**  
**Unit F – RELATIONS AND PATTERNS**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## What Do You Call a Scary Dog That Knows What's Happening?

For each situation, complete the table, then draw two graphs and write two equations. For table cells with letters, write the letter in the corresponding box at right.

**Sales Job.** Prime Products will pay you a weekly salary of \$100 plus 10% of sales. Digit Displays will pay you a weekly salary of \$300 plus 5% of sales. Show how your total weekly earnings at each store is a function of your sales.

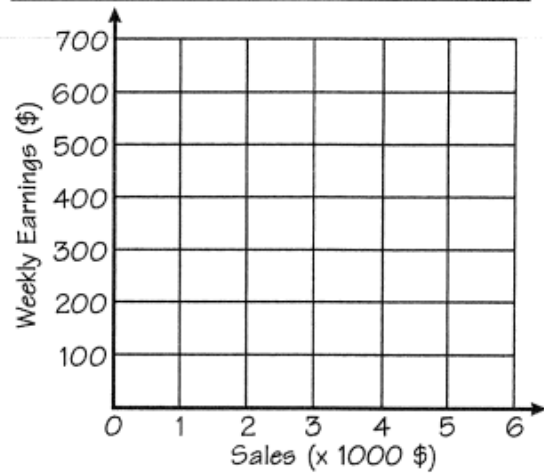
**Equations:**

$$E = \$100 + 10/100 \cdot S$$

$$E = \$300 + 5/100 \cdot S$$

Sales (\$/wk)	Earnings (\$/wk)	
	Prime	Digit
0	100	300
1000	200 <b>E</b>	
2000		<b>A</b>
3000		
4000		
5000		
6000		<b>F</b>

12	0	400	25	200	5	15	28	700
				<b>E</b>				



**SHOW WORK** ↓ Show how you evaluate the relationship between sales and earnings. Complete the puzzle above.

Earnings = Salary plus 10% of sales

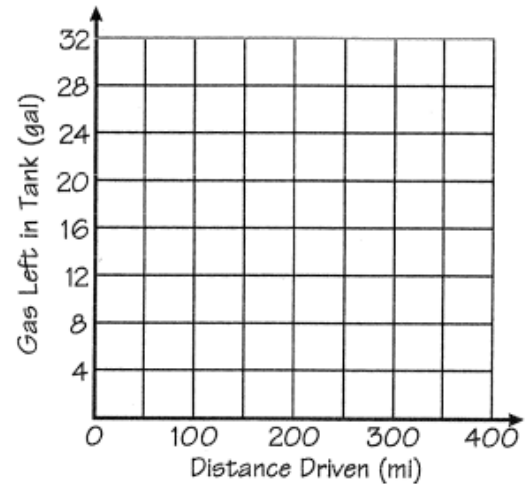
Earning for 0 sales  
 $= \$100 + 10\% \text{ of } 0 = \$100$

Earning for \$1,000 of sales  
 $= \$100 + 10/100 \cdot \$1,000 = 200$

**Burning Gas.** A Turbo averages 10 miles per gallon, and the gas tank holds 30 gallons. A Tork averages 25 miles per gallon, and its gas tank holds 16 gallons. If both cars start with full tanks, show how the amount of gas left in the tank is a function of the number of miles driven.

**Equations:** ? ↓

Miles Driven	Gas Left (gal)	
	Turbo	Tork
0	30	16
50		
100		A
150	O	
200		
250		
300		
350		
400		W



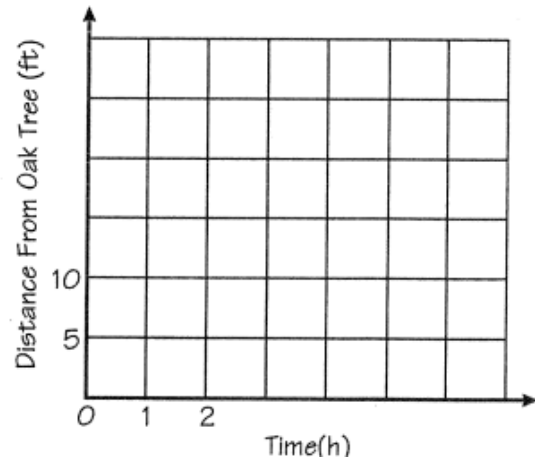
**SHOW WORK** ↓ Show how you evaluate the relationship between miles driven and gas remaining in the tank.

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**Crawlin' Critters.** An oak tree is 30 ft from an elm tree. A snail started crawling from the oak to the elm at a rate of 4 ft/h. A turtle started crawling from the elm to the oak at a rate of 5 ft/h. Show how the distance of each animal from the oak tree is a function of time since they started crawling.

**Equations:**  $4t$   $5t$

Time (h)	Distance (ft)	
	Snail	Turtle
0	0	30
1		R
2		
3		
4		
5		W
6		
7	L	



**SHOW WORK** ↓ Show how you evaluate the relationship between distance from the oak tree depends on elapsed time. Finish the puzzle!

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