SOLUTIONS: Black Practice Test – Graphing Goal 3

1. Graph H is the best choice. When Aki begins watching (x = 0), $\frac{1}{2}$ of the moon is visible. This is shown on the y axis. This she is watching a waxing (growing) moon, the fraction that's visible increases as the number of elapsed days increases. As the days increases, the maximum fraction of the moon becomes visible (a full moon) until the fraction visible decreases over time. At some point, the moon is not (or hardly) visible. At that time, the fraction of the moon that's visible will gradually increase again and the cycle will repeat as the months pass by.

2.

A. $T = 5h + 7.5$ T = the total amount of money earned
h = the number of hours spent babysitting

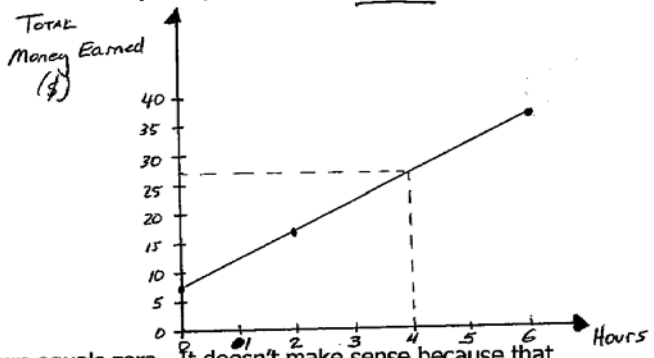
h is the input. T is the output.

B. Answers will vary. A reasonable domain might be: h continuous from 0 to 6. On a typical evening, parents may have a very short engagement that requires a babysitter, or they may have a longer evening planned, consisting of dinner, a movie, and dancing.

C.

h	T
0	$7.50
2	$17.50
6	$37.50

D. Four hours of babysitting should cost $27.50.



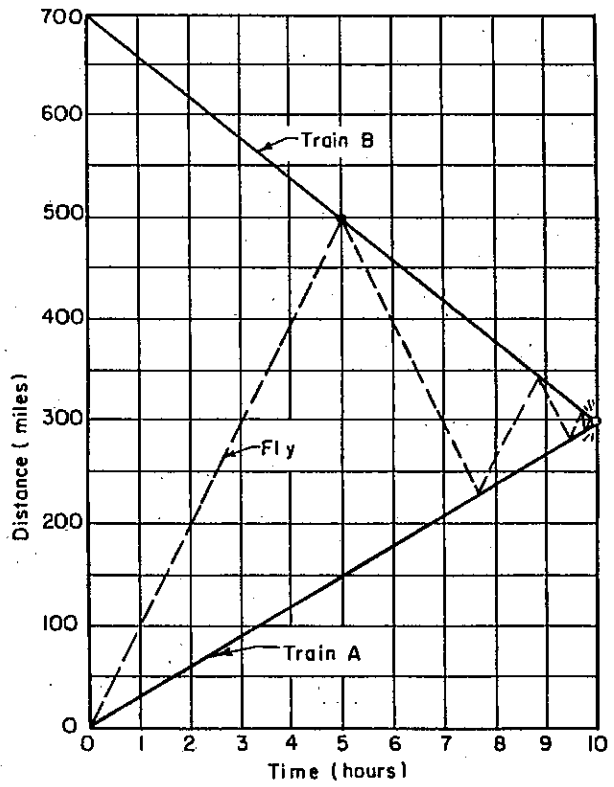
E. T = $7.50 when the number of hours equals zero. It doesn't make sense because that would mean that you would get paid even if you didn't baby sit at all.

F. The graph CAN be useful. Each point can simply be increased by 2.5 in the y-direction. Or simply add $2.50 to the value of the Total Amount of Money that you read from the graph.

G. As the number of hours you baby sit increases, the total amount of money you earn also increases. at a constant rate of $5 per hour.

3.

(The line for train A starts at 0,0 and has a slope of 30. The line for train B starts at 0,700 and has a slope of –40. The slope of the line for the fly alternates between 100 and –100, changing its sign each time it reaches the line for one of the trains. The graph shows that the fly flew for 10 hours before it was crushed. Since its speed was 100 miles per hour, it flew $10 \times 100 = 1000$ miles altogether.)



4. Let t = the time that each car has travelled since the beginning of the race.

When the cars meet, the distances they will have travelled will be equal.

$$\text{Distance (Car 1)} = \text{Distance (Car 2)}$$

$$3 + 6(t-1) = 16 + 8(t-4)$$

$$3 + 6t - 6 = 16 + 8t - 32$$

$$6t - 3 = 8t - 16$$

$$13 = 2t$$

$$6.5 = t$$

seconds