1. What is the smallest, positive integer value of
$$x$$
 such that the value of $f(x) = \frac{-2x + 3}{2}$ exceeds the value of $g(x) = \frac{-2x + 3}{2}$

$$\begin{array}{c}
A & S \\
A & S \\
B & 9 \\
C & 10
\end{array}$$

$$\begin{array}{c}
A & S \\
C & 10
\end{array}$$

$$\begin{array}{c}
A & S \\
C & 10
\end{array}$$

$$\begin{array}{c}
A & S \\
C & 10
\end{array}$$

$$\begin{array}{c}
A & S \\
C & 10
\end{array}$$

$$op+#1: 750X+33500$$

 $op+#a: 33500(1.03)$

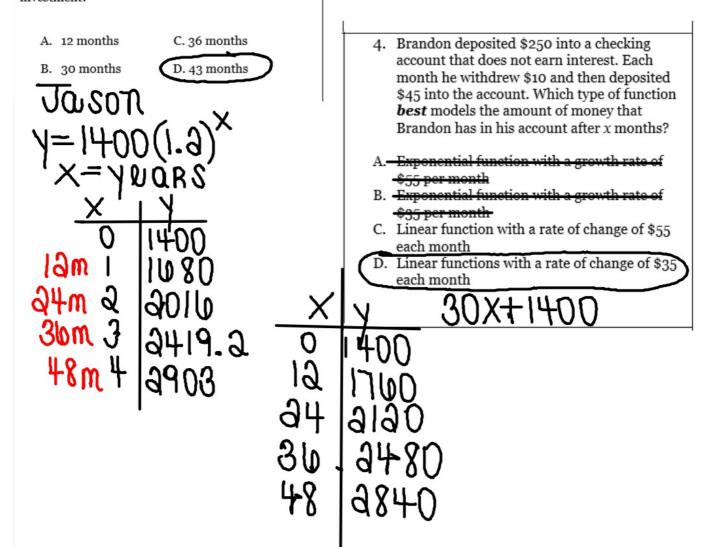
- Martha currently earns \$32,500 each year. She has been offered two different options for a pay raise.
- The first option is a \$750 increase in salary at the start of each year.
- The second option is a 2% increase in salary at the start of each year.

Which statement is true?

- The first option will always result in a higher salary for Martha.
- B. The second option will result in a higher salary at the start of the 2nd year.
- C. The second option will result in a higher salary at the start of the 16th year.
- D. There is no difference in the two salaries since \$750 is approximately 2% of her salary.

- 3. Jason and Ann invested money.
- Jason invested \$1,400 into an account that pays 20% interest compounded annually.
- Ann invested \$1,400 into an account that earns \$30 in interest each month.

About how long will it take before Jason's investment has a higher value than Ann's investment?



5. The function $f(t) = 45(1.2)^t$ gives the approximate number of fish in a large pond after t years.

Select all of the true statements.

- A. There were originally 45 fish in the pond. B. There were originally 54 fish in the pond.
- C. The number of fish increases by 9 every year.
- The number of fish doubles every year.

 The number of fish increases by a factor of 1.2 every year.

$$y=\omega(1+r)^{t}$$
 $\frac{60188}{51550} = \frac{51550}{51550}$
 $\sqrt{1.17} = \sqrt{1+r}^{2}$
 $\sqrt{1.08} = 1+r$
 $\sqrt{1.08} = r$

6. Juan started working at Tellurine Industries in 2004. He has earned the same percentage increase in salary each year. He was paid \$51,550 in 2008 and \$60,128 in 2010. By what percent did Juan's salary increase each year? Round your answer to the nearest whole percent.

8%

7. The amount of carbon 14 decays in an exponential fashion. Which table could show the approximate amount of carbon 2 over the 5-year interval shown?

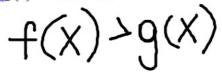
	Year	Amount of Carbon 14 (in grams)	
	1	19.800	
	2	19.602	
	3	19.406	
	4	19.212	
1	5	19.020	

Year	Amount of Carbon 14 (in grams)
1	20.200
2	20.402
3	20.606
4	20.812
5	21.020

Year	Amount of Carbon 14 (in grams)			
1	19			
2	18			
3	Z			
4	16			
5	15			

Year	Amount of Carbon 14 (in grams)				
1	21				
2	22				
3	23				
4	24				
5	25				

8. For which positive integer value of x will the value of $f(x) = 5(1.25)^x$ first exceed the value of g(x) = 12x + 25?



9. Two functions are shown in the table below.

х	f(x)	g(x)
-3	1	8
-2	4	4
-1	7	2
0	10	1

Which statement is true about the two functions when x = -6?

- A. The value of f(x) exceeds the value of g(x) by 56.
- B. The value of g(x) exceeds the value of f(x) by 56.
- C. The value of f(x) exceeds the value of g(x) by 72.
- D. The value of g(x) exceeds the value of f(x) by 72.
 - 10. Two functions are listed below.

$$f(x) = 200 + 50x$$

$$g(x) = 50(1.5)^{x}$$

- A. The value of f(x) exceeds the value of g(x) by 50.
- B. The value of g(x) exceeds the value of f(x) by 50. C. The value of f(x) exceeds the value of g(x) by 2200.
- D. The value of g(x) exceeds the value of f(x) by 2200.