

Assignment #6-4

Secondary 3 Honors

Precalculus Book: Pg. 221 5, 17, 24, 25, 28, 30, 34, 38, 39, 42, 44, 47, 50, 52, 58, 61, 65, 81, 85, 90, 91, 96, 98, 101, 104, 129, 150

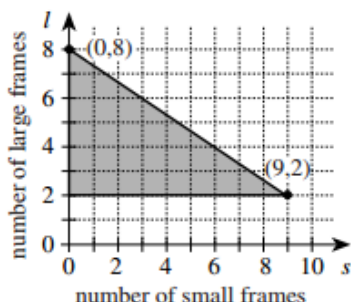
Additional problems:

Decide whether each statement in Problems 1-6 is true or false for $a > 0$ and $b > 0$.

1. $\log(a+b) = \log a + \log b$
2. $\ln(a+b) = \ln a \cdot \ln b$
3. $\log a - \log b = \frac{\log a}{\log b}$
4. $\log \frac{a}{b} = \frac{\log a}{\log b}$
5. $(\ln x)^3 = 3 \ln x$
6. $\ln x^3 = 3 \ln x$
7. Graph $y = 5^{x-1} - 2$
8. Graph $y = 2 \log_3(-x)$.

ACT Review:

Marcia makes and sells handcrafted picture frames in 2 sizes: small and large. It takes her 2 hours to make a small frame and 3 hours to make a large frame. The shaded triangular region shown below is the graph of a system of inequalities representing weekly constraints Marcia has in making the frames. For making and selling s small frames and l large frames, Marcia makes a profit of $30s + 70l$ dollars. Marcia sells all the frames she makes.



1. The weekly constraint represented by the horizontal line segment containing $(9,2)$ means that each week Marcia makes a minimum of:
 - F. 2 large frames.
 - G. 9 large frames.
 - H. 2 small frames.
 - J. 9 small frames.
 - K. 11 small frames.
2. For every hour that Marcia spends making frames in the second week of December each year, she donates \$3 from that week's profit to a local charity. This year, Marcia made 4 large frames and 2 small frames in that week. Which of the following is closest to the percent of that week's profit Marcia donated to the charity?
 - A. 6%
 - B. 12%
 - C. 14%
 - D. 16%
 - E. 19%
3. What is the maximum profit Marcia can earn from the picture frames she makes in 1 week?
 - F. \$410
 - G. \$460
 - H. \$540
 - J. \$560
 - K. \$690

4. The *determinant* of a matrix $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$ equals $ad - cb$.

What must be the value of x for the matrix $\begin{bmatrix} x & 8 \\ x & x \end{bmatrix}$ to have a determinant of -16 ?

- A. -4
- B. -2
- C. $-\frac{8}{5}$
- D. $\frac{8}{3}$
- E. 4

5. A formula for finding the value, A dollars, of P dollars invested at $i\%$ interest compounded annually for n years is $A = P(1 + 0.01i)^n$. Which of the following is an expression for P in terms of i , n , and A ?

- F. $A - 0.01i^n$
- G. $A + 0.01i^n$
- H. $\left(\frac{A}{1 + 0.01i}\right)^n$
- J. $\frac{A}{(1 - 0.01i)^n}$
- K. $\frac{A}{(1 + 0.01i)^n}$