

Name _____ **DUE DATE:** _____

Directions:

- Read each problem carefully and use your knowledge of mathematics to determine your answer.
- In order to receive FULL CREDIT you must either SHOW ALL WORK or EXPLAIN how you got your answer!! PLEASE NOTE: A multiple choice answer alone without any work will only receive half credit.

Question	Your Work/Explanation
1) Find the sum of $\sum_{n=1}^5 \frac{4n+6}{10}$	
2) Find the exact value, in radians, of the real number θ between $(0, 2\pi)$ where $\cos\theta = -\frac{\sqrt{3}}{2}$ and $\tan\theta > 0$	
3) Simplify: $\frac{\left(\frac{1-x}{2}\right)}{\left(3-\frac{2}{x}\right)}$	

4) Find the first four terms of the following sequence

$$a_n = \frac{3^n}{n!}$$

5) If $f(x) = 3x + 1$, then find $f^{-1}(-3)$.

6) What angle, $[0, 2\pi]$, intersects the unit circle at the point $\left(-\frac{1}{2}, -\frac{\sqrt{3}}{2}\right)$?

7) Write the equation of the line that passes through the point $(5, -3)$ and is perpendicular to the line

$$y = \frac{5}{2}x + 5.$$

8) Simplify: $\frac{7!}{4!(7-4)!}$

9) Find the exact value of $\csc -\frac{5\pi}{6}$.

10) Find $f(x - 1)$ if $f(x) = 3x^2 - 5x - 5$

11) Find the 5th term of the recursive sequence

$$a_{k+1} = 2a_k - 1 \text{ where } a_1 = 2$$

12) Solve: $\frac{5}{t+1} + \frac{2}{t-2} = \frac{13}{t^2-t-2}$

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