Answer the following questions.

1) The surface speed \( S \) if feet per minute of a rotating cylindrical object is evaluated in the below formula where \( d \) is the diameter of the object and \( n \) is the speed of rotation in RPM. If an 8in grinder must have a surface speed of 6000 fpm, what should the speed of rotation be? Use 3.14 for \( \pi \) and round to the nearest hundred rpm.

\[
S = \frac{\pi dn}{12}
\]

2) The formula \( A = P + PRT \) is used to determine the total amount of money \( A \) in a bank account after an amount \( P \) is invested for \( T \) years at a rate of interest \( R \). What rate of interest is needed for $8000 to grow to $12,000 after 5 years? Round to the tenth of a percent.

3) Solve for \( b \):

\[
2 - 3(b + 2) + 5(b - 3) = 17
\]
4) The formula $I = 0.000014L(T - t)$ gives the expansion (I) of a highway of length L at a temperature of T degrees Fahrenheit. The variable t stands for the temperature that the highway was built. If a 3 mile stretch of the highway was built at an average temperature of 50.0°, what is the maximum temperature it can withstand if expansion joints allow for 10.5 feet of expansion? (Get the units for I and L the same first!)

5) Solve for A:

$$ R = \frac{AT}{B + C} $$