

Test 9, Lesson 34, Form A

SHOW YOUR WORK

Name: _____

- The pressure of an ideal gas varies directly with the temperature and inversely with the volume. If the initial pressure, volume, and temperature were P newtons per square meter, L liters, and T Kelvin, what would the pressure be if the volume and temperature were 5 liters and 100 Kelvin, respectively?
- Express $\sin(A + B)$ and $\cos(A + B)$ as functions of the sine and cosine of A and B .
- Use problem 2 to develop expressions for $\tan(A + B)$ in terms $\tan A$ and $\tan B$.
- Find the volume of a sphere whose surface area is $16\pi \text{ m}^2$.
- Find the volume of a right circular cone whose base has area $4\pi \text{ cm}^2$ and whose height is 5 cm.

Use the power rule of differentiation to work problems 6–8.

- Find $\frac{dy}{dx}$ if $y = \frac{1}{x^2}$
- Find $f'(x)$ if $f(x) = \sqrt{x}$
- Find $\frac{ds}{dt}$ if $s(t) = \frac{1}{\sqrt{t^3}}$
- Find $D_x y$ if $y = x^{13}$
- Express the four fourth roots of $\frac{1}{2} + \frac{\sqrt{3}}{2}i$ in polar form.
- Find all the values of x which lie between 0 and 2π which satisfy the equation $\sin 3x = \frac{1}{2}$.
- The general equation of a conic section is $4x^2 - y^2 - 8x - 2y - 1 = 0$. Write the equation of this conic section in standard form and describe this conic section.
- Find the coefficient of x^4y in the expansion of $(x + 2y)^5$.
- Find all those values of x for which $\log_3(x + 2) > 1$.

Concept Review:

- If $m\widehat{AC} = 60^\circ$, what is the measure of angle ADC ?

