

AP Calculus
1.1 Worksheet

All work must be shown in this course for full credit. Unsupported answers may receive NO credit.

- Write the equation of the line that goes through the points $(-3, 7)$ and $(4, 5)$ in
 - point-slope form
 - slope-intercept form
 - standard form
- Write an equation of the line that passes through the point $(12, 15)$ and
 - is parallel to the x -axis
 - is parallel to the y -axis
- Find an equation of the line tangent to a circle with radius 5 and center $(0,0)$ at the point $(3, 4)$.
Hint: A Tangent Line to a circle is always perpendicular to the radius at the point of tangency.
- For what value of k are the two lines $2x + ky = 3$ and $x + y = 1$
 - parallel
 - perpendicular

5. The relationship between Fahrenheit and Celsius temperatures is linear.

a) Using the fact that water freezes at 0°C or 32°F , and water boils at 100°C or 212°F (not your recollection of temperature formulas) find a linear equation that relates Celsius and Fahrenheit.

b) *Using your equation*, find the Celsius equivalent of 80°F and the Fahrenheit equivalent of -10°C .

c) Is there a temperature at which a Fahrenheit and a Celsius thermometer give the same reading? If so, what is it?

6. The pressure p experienced by a diver under water is related to the diver's depth d by an equation of the form $p = kd + 1$, where k is a constant. When $d = 0$ meters, the pressure is 1 atmosphere. The pressure at 100 meters is 10.94 atmospheres. Find the pressure at 50 meters.

7. Consider the point $P(-2, 1)$ and the line $L: x + y = 2$.

a) Find the slope of L .

b) Write an equation for the line through P and parallel to L .

c) Write an equation for the line through P and perpendicular to L .

d) What is the x -intercept of L ?