C12 - 3.1 - Critical Points HW

Find the critical points. Find the derivative and set it equal to zero. Draw a graph and show the location of the horizontal slopes. Use a number line to show where the derivative and slope is positive and negative. Define the critical point as a maximum or a minimum.

$y = x^3 - 27x$

$y = x^3 - 5x^2 - 8x$

C12 - 3.3 - Circle/Sphere Related Rates HMK

Find the rate of change

The radius of the circle is growing at 4 m/s. What is the rate at which the volume of the circle is changing when the radius is 10 m.

The radius of the sphere is growing at 3 m/s. What is the rate at which the volume of the sphere is changing when the radius is 10 m.

C12 - 3.3 - Square/Cube Related Rates HMK

Find the rate of change

The side of the square is growing at 2 cm/s. What is the rate at which the area of the square is changing when the side is 8 cm.

The side of the cube is growing at 3 m/s. What is the rate at which the volume of the cube is changing when the side is 2 m.

C12 - 3.3 - Square/Cube Related Rates HMK

Find the rate of change

The area of the square is growing at 7 cm squared per second. What is the rate at which the side length of the square is changing when the side is 14 cm.

The volume of the cube is growing at 3 meters cubes per second. What is the rate at which the volume of the cube is changing when the side is 2 m.

C12 - 3.3 - Train Pythag Related Rates HMK

Find the rate of change

Train 'a' leaves Vancouver heading North at 8 m/s and train 'b' leaves heading West at 6 m/s? How far are they a part after 5 minutes? What is the speed at which the trains are moving apart at that time?

C12 - 3.3 - Ladder Pythag Related rates HMK

Find the rate of change

The top of a 20 ft ladder slides down a wall at a rate of 2 ft/s. At what rate is the base of the ladder sliding away from the wall when the latter is at a height of 6 ft on the wall.

What is the rate the angle at the bottom of the ladder changing?

C12 - 3.3 - Similar Triangles/Cos Law Related Rates Notes

Find the rate of change.

At 6 foot tall man is walking away from a 30 foot lamp post at 2 m/s. What is the rate of his shadow when he is 50 feet from the lamp post; and is his shadow getting bigger or smaller.

A float plane rising at 15° above the horizontal flies over a boat at an altitude of 200 m at 80 m/s. How fast is the distance between the boat and the plane increasing after five seconds?

C12 - 3.3 - Cone/Sim Tri/Cos Law Related Rates Notes

Find the rate of change.

A cone with a radius of 4 cm and height of 8 cm is filling with water with the height of the water level is increasing at a rate of 0.1 cm/s. What is the rate the volume is increasing when the height of the water is level 2 cm.