

**Name** \_\_\_\_\_ **No calculators. Present neatly. Score** \_\_\_\_\_.

1)

A police car traveling south toward Sioux Falls at 160 km/h pursues a truck traveling east away from Sioux Falls, Iowa, at 140 km/h. At time  $t = 0$ , the police car is 20 km north and the truck is 30 km east of Sioux Falls. Calculate the rate at which the distance between the vehicles is changing:

**a)** At time  $t = 0$       **(b)** 5 minutes later

Your work:

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1)

A man of height 1.8 meters walks away from a 5-meter lamppost at a speed of 1.2 m/s. Find the rate at which his shadow is increasing in length when he is 8 meters away from the lamppost.

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Your work: