Name: _____

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SNC 2DI Mirror Assignment

Put your answers to the questions in the space provided on this sheet. Complete full solutions on a separate piece of paper. Remember to show all work, all formulas used and appropriate units where necessary. Note: the front page of this assignment will not be marked if the rough work is not included.

1. Identify if the mirror is concave or convex and determine the centre of curvature for the following
   a) the focal length is 20 cm _____ (1)
   b) focal length is -16 cm _____ (1)

2. A ray of light strikes a plane mirror at an angle of 63° to the mirror surface ...
   a) What is the angle of incidence? _____ (1)
   b) What is the angle of reflection? _____ (1)

3. While driving your car you see the sign JULIE'S DINER, once you pass the sign and look at it in your rear view mirror, how would the sign appear, in your review mirror? Draw it in below. (1)

4. Calculate using the curved mirror equation and describe the image created by a 4 cm tall object placed in 5 cm in front of a concave mirror with a focal length of 12 cm. **Hint: Find hi and di and state them in the L and S section** (4)
   L - O - S - T -

5. Calculate using the curved mirror equation and describe the image created by a 6 cm tall object placed 10 cm in front of a convex mirror with a focal length of -10 cm. **Hint: Find hi and di and state them in the L and S section** (4)
   L - O - S - T -

6. You are told that an object's image is magnified 25 times. You also know that the image is 65 m high.

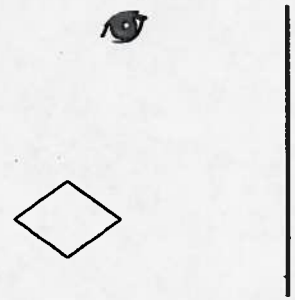
   a) What is the height of the object? Is the image upright or inverted? (2)
   height of object: orientation:

   b) If the object is 15 m from the mirror where is the image? Is it real or virtual? (2) distance of image: type:

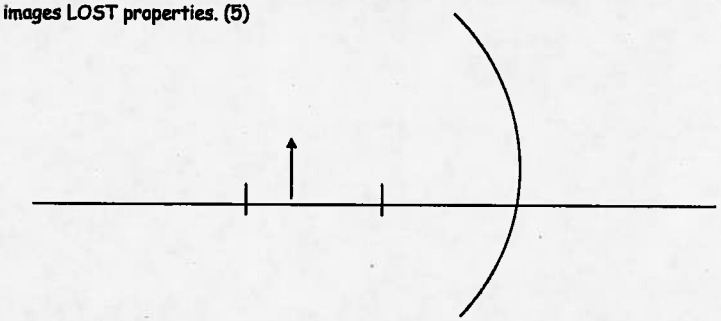
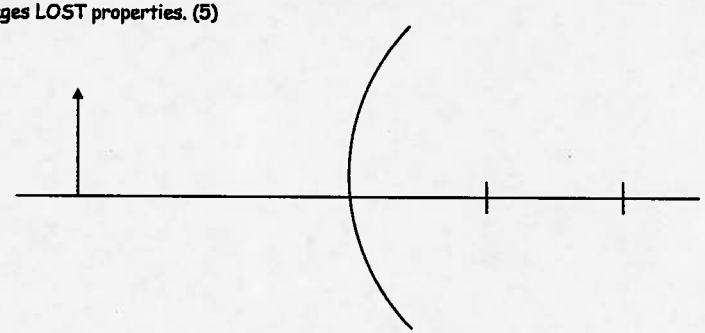
7. When standing 3.0m in front of an amusement park mirror, you notice your image is 4 times taller (magnified) than normal, what is the centre of curvature of the mirror? (3)[2 rough work] **Hint: this is a 3 step problem!** Centre of curvature:

Diagrams: Answer these questions in the space provided

8. On the diagram below, show how the eye would see the object and indicate where the image forms in the plane mirror. Use at least 3 rays to show where the image appears and how the eye perceives the object. List the LOST properties. (5)



9. Using 3 rays, show the image produced on the below concave mirror and list the images LOST properties. (5)



10. Using 3 rays, show the image produced on the below convex mirror and list the images LOST properties. (5)