

**Exercise 3d**  
**Angular Diameter of Messier Objects**  
**Page 1**

**Group Number:**

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|                                                     |  |                       |  |
|-----------------------------------------------------|--|-----------------------|--|
| Names of members of lab group (alphabetical please) |  |                       |  |
|                                                     |  |                       |  |
| Coordinator(s):                                     |  | Acknowledged Members: |  |
|                                                     |  |                       |  |
|                                                     |  |                       |  |
|                                                     |  |                       |  |

In this exercise, you will use the Messier Catalog which is referenced in the PHY250 website. Begin by determining the angular diameter of the moon, using the "knuckle method."

|                           |
|---------------------------|
| Angular diameter of moon: |
|---------------------------|

Now, look up the angular diameter of any 3 NAMED objects from the Messier Catalog. Then, look up the angular diameter of the Orion Nebula and the Andromeda Galaxy (both of these can be found in the winter sky).

|                                 |  |       |  |
|---------------------------------|--|-------|--|
| <b>Object 1</b>                 |  |       |  |
| Messier Catalog Identification: |  | Name: |  |
| Angular diameter:               |  |       |  |

|                                 |  |       |  |
|---------------------------------|--|-------|--|
| <b>Object 2</b>                 |  |       |  |
| Messier Catalog Identification: |  | Name: |  |
| Angular diameter:               |  |       |  |

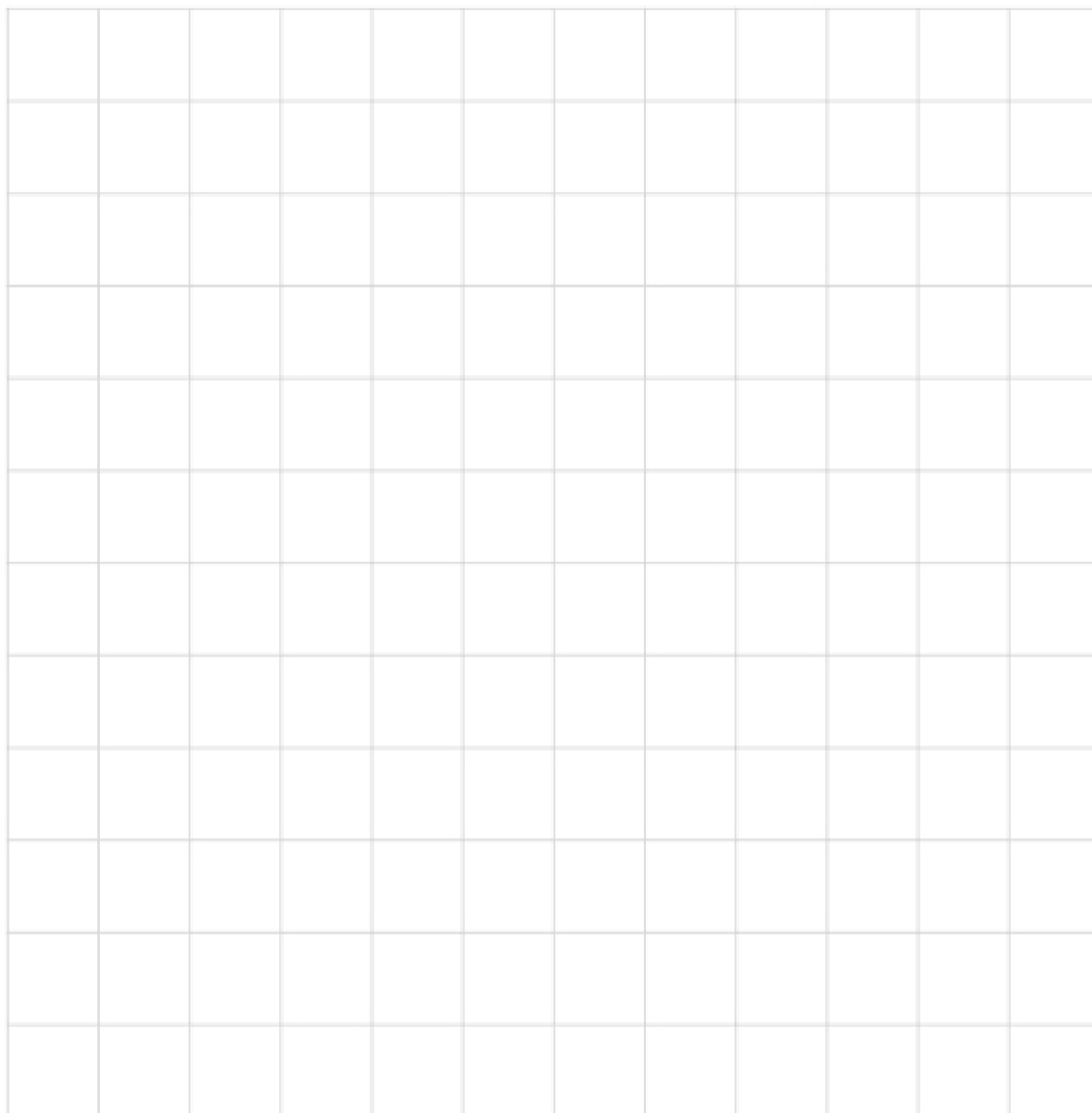
|                                 |  |       |  |
|---------------------------------|--|-------|--|
| <b>Object 3</b>                 |  |       |  |
| Messier Catalog Identification: |  | Name: |  |
| Angular diameter:               |  |       |  |

|                                 |  |       |                         |
|---------------------------------|--|-------|-------------------------|
| Messier Catalog Identification: |  | Name: | <i>The Orion Nebula</i> |
| Angular diameter:               |  |       |                         |

|                                 |  |       |                         |
|---------------------------------|--|-------|-------------------------|
| Messier Catalog Identification: |  | Name: | <i>Andromeda Galaxy</i> |
| Angular diameter:               |  |       |                         |

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Assume each square on the above grid is 0.5 degrees by 0.5 degree.

Draw the moon on the grid as a circle.

Roughly draw either Object 1 or Object 2 or Object 3 from page 1, and then draw the two identified Messier Objects on the grid as they appear in the sky to your eyes. Do not draw one on top of each other, and the exact details of the shape of each object is not important.

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Comment on your observations from the previous page and your drawings on the second page. Compare, for example, the angular diameter of the smallest object you could "see" in Exercise 2 with the angular diameters you have looked up.