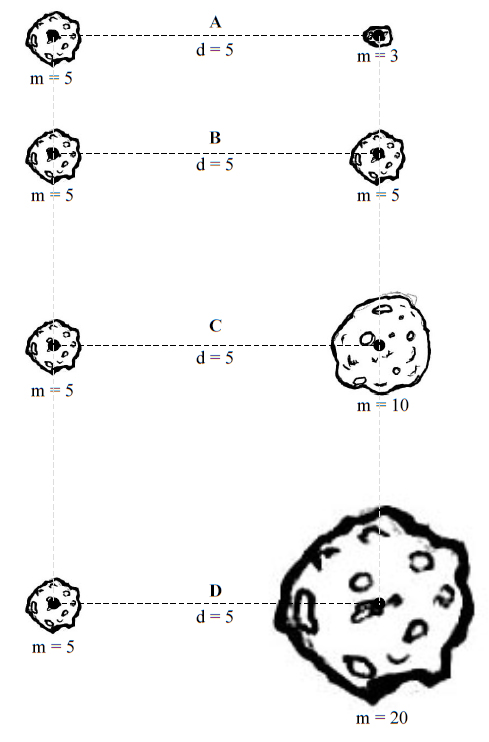
Physics Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**The figure below shows four pairs of rocky asteroids with masses (m) separated by a distance (d). Apply your understanding of Newton’s Universal Law of Gravity to answer questions 1-3.**

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1) Rank (*from least to greatest*) the strength of the gravitational force exerted on the asteroid located on the left side of each of the four pairs of asteroids (A - D).

a. A,B,C,D b. D,C,B,A c. They are all equal d. Not enough information to determine

2) Which asteroid in pair D would experiences a stronger gravitational force of attraction?

a. Left side (m=5) b. Right side (m=20) c. Both experience the same force

3) Which asteroid in pair D would undergo a greater acceleration due to the force of gravity?

a. Left side (m=5) b. Right side (m=20) c. Both experience the same acceleration

|  |  |  |  |
| --- | --- | --- | --- |
| **Pair of Stars** | **Mass of star #1** | **Mass of star #2** | **Distance between stars #1 and #2** |
| **A** | **2** | **6** | **2** |
| **B** | **1** | **4** | **1** |
| **C** | **4** | **3** | **3** |
| **D** | **3** | **2** | **2** |

4) The chart above describes the masses of 4 pairs of stars and the distance that separates each pair of stars. Units are arbitrary. Rank (from greatest to least) the magnitude of the force of gravity acting on each star in pairs A-D. Show your work comparing the values below.

a. B, A, C, D

b. C, A, D, B

c. A, B, D, C

d. B, A, D, C

e. B, C, D, A