

# PracTest PHY.03 - Circular Motion and Gravity

## True/False

Indicate whether the statement is true or false.

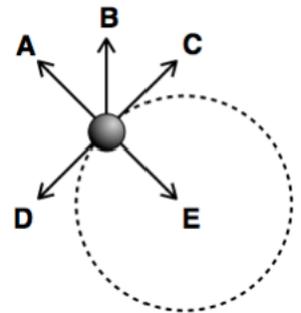
1. [Mechanical Universe-Apple & Moon] The zero  $g$  (weightlessness) experienced by astronauts in orbit around the moon is due to the absence of gravity.  
A. True  
B. False

## Multiple Choice

Identify the choice that best completes the statement or answers the question.

2. An object in uniform circular motion has  
A. a constant magnitude of acceleration  
B. constant orbital radius  
C. constant magnitude of force  
D. constant speed  
E. all of these  
F. none of these
3. The force needed to keep an Olympic bobsled in a circular path as it makes a turn on the icy track is provided by a component of  
A. centripetal  
B. friction  
C. normal  
D. inertia  
E. lift  
F. weight (gravitational force)
4. The force needed to keep a bird in a circular path as it makes a turn is provided by a component of  
A. centripetal  
B. friction  
C. normal  
D. inertia  
E. lift  
F. weight (gravitational force)

The particle shown to the right is traveling clockwise in uniform circular motion.



5. The velocity of the particle shown above is in which direction?  
A. A      B. B      C. C      D. D      E. E



15. [Mechanical Universe-Kepler's Laws] What curve fit the precise plot of Mars' orbit?  
A. Circle                      B. Oval                      C. Ellipse                      D. Cycloid
16. A 2 kg ball moves in a circle 3 m in radius at a speed of 5 m/s. The centripetal force acting on it is  
A. 1.1 N                      B. 3.3 N                      C. 3.6 N                      D. 6.7 N                      E. 17 N
17. [CPA-Gravity I] A certain gravitational force  $F$  exists between two planets having masses  $m_1$  and  $m_2$  and a distance  $d$  between them. What is the force if both masses are doubled?  
A. one fourth as much    B. half as much              C. twice as much              D. four times as much
18. [One Voice in the Cosmic Fugue] The Heiki Crab in Japan is a textbook example of  
A. a species driven to extinction by human negligence  
B. natural selection  
C. a transitional species in an evolutionary thread  
D. artificial selection

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### Answer Section

#### TRUE/FALSE

1. ANS: F                      TOP: MU-The Apple and the Moon

#### MULTIPLE CHOICE

2. ANS: E                      TOP: Tangential    NOT: PF
3. ANS: C                      TOP: Centripetal Force                      NOT: PT
4. ANS: E                      TOP: Centripetal Force                      NOT: PT
5. ANS: C                      TOP: UCM Directions
6. ANS: C                      TOP: UCM Directions
7. ANS: E                      TOP: UCM Directions
8. ANS: D                      TOP:  $F=mv^2/r$  Props                      NOT: PT
9. ANS: C                      TOP:  $F=mv^2/r$  Props                      NOT: PT
10. ANS: H                      TOP: History                      NOT: PT
11. ANS: A                      TOP: History                      NOT: PT
12. ANS: B                      TOP: History                      NOT: PT
13. ANS: E                      TOP: Grav Prop Vary Distance                      NOT: PT
14. ANS: B                      TOP: Grav Prop Vary Mass & Radius                      NOT: PT
15. ANS: C                      TOP: MU-Kepler's Laws
16. ANS: E                      TOP:  $F=mv^2/r$                       NOT: PF
17. ANS: D                      TOP: 13. Gravity I
18. ANS: D                      TOP: 102