Answers to selected questions

Chapter 5

Q6. Curve 3. The ball continues in a straight line in the direction that it was traveling when the string broke according to Newton's first law.

Q12. The tension must be greatest at the bottom of the circle. It must be large enough to support the full weight of the ball there in addition to providing the centripetal acceleration.

Q18. The two points where the string is attached must be moved together so that they coincide to produce a circle, which is a special case of an ellipse.

Q24. No. A star cannot be visible inside the completed disc of the Moon because the Moon is closer to the Earth than any star and would block the light coming from the star.

Q30. Yes. Kepler's third law is valid for the Moon, but the numerical constant in the law will be different from that for the planets' orbits about the Sun.