

### Pre-Post Test

1. How many planets have been discovered?  
a) more than 8      b) more than 12      c) more than 15
2. What must all solar systems have?  
a) planet      b) sun      c) moons      d) a and b
3. Which is a gas giant?  
a) Jupiter      b) Mercury      c) Pluto
4. What should be found at 2.8 astronomical units from our sun?  
a) asteroid belt      b) Jupiter      c) Luna      d) planet "X"
5. Which is bigger?  
a) astronomical unit      b) light year
6. According to Bode's Law, how far out in our solar system should we look for another planet? Explain using math to support your answer.

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Answers:

1. c
2. d
3. a
4. a
5. b
6.  $768 \times 2 = 1,536$      $1,536 + 4 = 1,540$      $1,540 / 10 = 154$  astronomical units.  
According to Bode's Law we should find another planet at 154 astronomical units from our Sun.

### Bode's Law

Distances in astronomical units, (A.U.)

<u>Planet</u>	<u>distance by Bode's Law</u>	<u>actual distance</u>
Mercury	0.4	0.39
Venus	0.7	0.72
Earth	1.00	1.00
Mars	1.6	1.52
Asteroid Belt	2.8	2.8 approx.
Jupiter	5.2	5.2
Saturn	10.0	9.54
Uranus	19.6	19.18
Neptune	38.8	30.16
Pluto	77.2	39.30

Distances are in astronomical units. An astronomical unit is equal to about 93 million miles, (150 million kilometers), the average distance from the center of our Sun to the center of the Earth.