



Math Olympiad and Problem Solving Programs  
E120 - Honors Algebra Problem Solving  
Problem Set 13.1 - Linear Equations

Name:

Date:

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1.  C

2.  C

3.  $4x^4 = 2^2 \times x^4$  and  $6x^6 = 2 \times 3 \times x^6$ . Their least common multiple is  $2^2 \times 3 \times x^6 = 12x^6$ .  C

4. The question can be translated literally into an equation:

$$\begin{aligned}\frac{x}{100} \times 0.5p &= p \\ x &= \frac{100p}{0.5p} = 200 \quad \text{E}\end{aligned}$$

5.  $(1.23x)^3 = \left(\frac{12.3x}{10}\right)^3 = \frac{(12.3x)^3}{10^3} = \frac{9753}{1000} = 9.753$   C

6.  C

7.  E

8. Again, the question can be translated literally into an equation:

$$\begin{aligned}\frac{1}{3} &= \frac{1}{12} + \frac{1}{x} \\ \frac{1}{4} &= \frac{1}{x} \\ x &= 4 \quad \text{A}\end{aligned}$$

9.  B

10. This problem may have been graded wrong.  $n = 3$  is the only  $n$  that produces the results.  
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