Power Theorems

Total points = 47

1. $(3x)(2x) = (8)(3)$ ✓
   $\frac{6x^2}{6} = \frac{24}{6}$ ✓
   $\sqrt{x^2} = \sqrt{4}$ ✓
   $\boxed{x = 2}$ ✓
2. $(x+3)(3) = (9)(4)$ ✓
   $3x + 9 = 36$ ✓
   $3x = 36 - 9$ ✓
   $\frac{3x}{3} = \frac{27}{3}$ ✓
   $\boxed{x = 9}$ ✓
3. $(2x)(x) = (10)^2$ ✓
   $\frac{2x^2}{2} = \frac{100}{2}$ ✓
   $\sqrt{x^2} = \sqrt{50}$ ✓
   $\boxed{x = 5\sqrt{2}}$ ✓
4. $(x+2+x)(x) = (x+1)^2$ ✓
   $2x^2 + 2x = x^2 + 2x + 1$ ✓
   $2x^2 - x^2 + 2x - 2x = 1$ ✓
   $\sqrt{x^2} = \sqrt{1}$ ✓
   $\boxed{x = 1}$ ✓
5. $(x+8)(4) = (6)^2$ ✓
   $4x + 32 = 36$ ✓
   $4x = 36 - 32$ ✓
   $\frac{4x}{4} = \frac{4}{4}$ ✓
   $\boxed{x = 1}$ ✓
   $(y)(3) = (4)(1)$ ✓
   $\frac{3y}{3} = \frac{4}{3}$ ✓
   $\boxed{y = \frac{4}{3}}$ ✓
6. $(x+12)(x) = (8)^2$ ✓
   $x^2 + 12x = 64$ ✓
   $x^2 + 12x + 36 = 64 + 36$ ✓
   $\sqrt{(x+6)^2} = \sqrt{100}$ ✓
   $x + 6 = 10$ ✓
   $x = 10 - 6$ ✓
   $\boxed{x = 4}$ ✓
   $(16)(4) = (y+9)(y)$ ✓
   $64 = y^2 + 9y$ ✓
   $64 + \frac{81}{4} = y^2 + 9y + \frac{81}{4}$ ✓
   $\sqrt{\frac{337}{4}} = \sqrt{\left(y + \frac{9}{2}\right)^2}$ ✓
   $\frac{\sqrt{337}}{2} = y + \frac{9}{2}$ ✓
   $\boxed{y = \frac{-9 + \sqrt{337}}{2}}$ ✓
7. $(x+12)(7) = (11)^2$ ✓
   $7x + 84 = 121$ ✓
   $7x = 121 - 84$ ✓
   $\frac{7x}{7} = \frac{37}{7}$ ✓
   $\boxed{x = \frac{37}{7}}$ ✓
   $(y)(9) = (5)(\frac{37}{7})$ ✓
   $\frac{9y}{9} = \frac{185}{(9)(7)}$ ✓
   $\boxed{y = \frac{185}{63}}$ ✓

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