

Name: \_\_\_\_\_

Date \_\_\_\_\_

**Topic: Exponential Expressions and Equations - Worksheet 1**

**1. Solve for x:  $40^{8x-4} = 40^{10x+5}$**

**2. Solve for x:  $6^{4x+2} = 36^{3x}$**

**3. Solve for x:  $3^{10x} = 9^{3x-15}$**

**4. Solve for x:  $400^x = 20$**

**5. Solve for z:  $(1/25)^z = 5$**

**6. Solve for x:  $7^{-6x+12} = 49$**

**7. Solve for x:  $14^x = 1/196$**

**8. Solve for t:  $8^{10x} = 64^{3x-15}$**

**9. Solve for x:  $9^{2x+10} = 81$**

**10. Solve for x:  $20^{-2x+6} = 400$**



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**Topic: Exponential Expressions and Equations - Worksheet 2**

**1. Solve for x:  $30^{9x-6} = 30^{12x+5}$**

**2. Solve for x:  $7^{5x+2} = 49^{5x}$**

**3. Solve for x:  $6^{2x} = 36^{3x-8}$**

**4. Solve for x:  $900^x = 30$**

**5. Solve for z:  $(1/16)^z = 4$**

**6. Solve for x:  $5^{-6x+12} = 25$**

**7. Solve for x:  $13^x = 1/169$**

**8. Solve for t:  $4^{15x} = 16^{3x-9}$**

**9. Solve for x:  $2^{2x+10} = 4$**

**10. Solve for x:  $30^{2x+6} = 300$**



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**Topic: Exponential Expressions and Equations - Worksheet 3**

**1. Solve for x:  $20^{10x-8} = 20^{2x+4}$**

**2. Solve for x:  $11^{12x+3} = 121^{5x}$**

**3. Solve for x:  $9^{8x} = 81^{2x-11}$**

**4. Solve for x:  $1600^x = 40$**

**5. Solve for z:  $(1/9)^z = 81$**

**6. Solve for x:  $12^{-6x+12} = 144$**

**7. Solve for x:  $16^x = 1/256$**

**8. Solve for t:  $8^{10x} = 64^{3x-15}$**

**9. Solve for x:  $5^{5x+15} = 25$**

**10. Solve for x:  $40^{6x+12} = 400$**



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**Topic: Exponential Expressions and Equations - Worksheet 4**

**1. Solve for x:  $80^{13x-8} = 80^{19x+6}$**

**2. Solve for x:  $16^{14x+6} = 256$**

**3. Solve for x:  $12^{2x} = 144^{2x-12}$**

**4. Solve for x:  $500^x = 50$**

**5. Solve for z:  $(1/64)^{2z} = 8$**

**6. Solve for x:  $11^{-6x+21} = 121$**

**7. Solve for x:  $14^{3x} = 1/196$**

**8. Solve for t:  $7^{8x} = 49^{2x-11}$**

**9. Solve for x:  $9^{9x+13} = 81$**

**10. Solve for x:  $50^{16x+22} = 2500$**



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**Topic: Exponential Expressions and Equations - Worksheet 5**

**1. Solve for x:  $90^{18x-7} = 90^{14x+10}$**

**2. Solve for x:  $10^{25x+15} = 100$**

**3. Solve for x:  $11^x = 121^{3x-15}$**

**4. Solve for x:  $3600^x = 60$**

**5. Solve for z:  $(1/9)^z = 3$**

**6. Solve for x:  $9^{-6x+12} = 81$**

**7. Solve for x:  $17^x = 1/289$**

**8. Solve for t:  $15^{25x} = 225^{4x-15}$**

**9. Solve for x:  $4^{4x+16} = 16$**

**10. Solve for x:  $50^{8x+12} = 2500$**

