

Name _____

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| <p>1. $3^{2x-5} = 3^{x+3}$</p> $2x-5 = x+3$ $x = 8$ | <p>2. $5(3^x) = 405$</p> $3^x = 81$ $3^x = 3^4$ $x = 4$ |
| <p>3. $4^x - 8 = 56$</p> $4^x = 64$ $4^x = 4^3$ $x = 3$ | <p>4. $(5^{x-4}) + 8 = 133$</p> $5^{x-4} = 125$ $5^{x-4} = 5^3$ $x = 7$ |
| <p>5. $4(2)^{2x} + 2 = 34$</p> $4(2)^{2x} = 32$ $2^{2x} = 8$ $2^{2x} = 2^3$ $x = \frac{3}{2}$ | <p>6. $2^{3x} = \frac{1}{8}$</p> $2^{3x} = 2^{-3}$ $x = -1$ |
| <p>7. $3^{2x} = \left(\frac{1}{9}\right)^3$</p> $3^{2x} = (3^{-2})^3$ $2x = -6$ $x = -3$ | <p>8. $\left(\frac{1}{125}\right)^{4x} = 5^3$</p> $(5^{-3})^{4x} = 5^3$ $x = -\frac{1}{4}$ |
| <p>9. $4^{4x+3} = 16^{x-3}$</p> $4^{4x+3} = (4^2)^{x-3}$ $4x+3 = 2x-6$ $x = -\frac{9}{2}$ | <p>10. $3^{2x+3} = \left(\frac{1}{81}\right)^{x-1}$</p> $3^{2x+3} = (3^{-4})^{x-1}$ $2x+3 = -4x+4$ $x = \frac{1}{6}$ |



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| <p>11. $\log_3(x) = 4$</p> <p>$3^4 = x$</p> <p>$x = 81$</p> | <p>12. $\log_5(x-3) = 2$</p> <p>$5^2 = x-3$</p> <p>$x = 28$</p> |
| <p>13. $\log_4(2x) = 3$</p> <p>$4^3 = 2x$</p> <p>$x = 32$</p> | <p>14. $2\log_2(x-3) = 10$</p> <p>$\log_2(x-3) = 5$</p> <p>$2^5 = x-3$</p> <p>$x = 35$</p> |
| <p>15. $\log_3(x+2) = \log_3 12$</p> <p>$x+2 = 12$</p> <p>$x = 10$</p> | <p>16. $\log_7(3x) = \log_7(x+20)$</p> <p>$3x = x+20$</p> <p>$x = 10$</p> |
| <p>17. $\log_3(x^2) = \log_3(2x+3)$</p> <p>$x^2 = 2x+3$</p> <p>$x^2 - 2x - 3 = 0$</p> <p>$(\quad) (\quad)$</p> <p>$x = 3, -1$</p> | <p>18. $\log_2(x^2 + 2x) = \log_2 15$</p> <p>$x^2 + 2x = 15$</p> <p>$x^2 + 2x - 15 = 0$</p> <p>$x = -5, 3$</p> |

*Textbook → P. 490 #17-35 odd
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