

Math 3 Unit 9 Worksheet 1
The WhatPower Function

Name: _____
Date: _____ **Period:** _____

Evaluate each expression using the “WhatPower” function. The first three have been completed for you.

1. $\text{WhatPower}_5(25) = 2$

2. $\text{WhatPower}_3(27) = 3$

3. $\text{WhatPower}_2(16) = 4$

4. $\text{WhatPower}_2(32) =$

5. $\text{WhatPower}_{10}(100) =$

6. $\text{WhatPower}_{10}(1000) =$

7. $\text{WhatPower}_4(64) =$

8. $\text{WhatPower}_2(64) =$

9. $\text{WhatPower}_{10}(10000) =$

10. $\text{WhatPower}_5(\sqrt{5}) =$

11. $\text{WhatPower}_9(3) =$

12. $\text{WhatPower}_8(2) =$

13. $\text{WhatPower}_{42}(1) =$

14. $\text{WhatPower}_{\frac{1}{2}}\left(\frac{1}{8}\right) =$

15. $\text{WhatPower}_{\frac{2}{3}}\left(\frac{4}{9}\right) =$

16. $\text{WhatPower}_3\left(\frac{1}{3}\right) =$

17. $\text{WhatPower}_2\left(\frac{1}{4}\right) =$

18. $\text{WhatPower}_{100}(0.01) =$

Write a definition for the function **WhatPower_b(a)** where **b** and **a** are numbers.

Evaluate the following, if possible, and use your definition to justify each of your results.

19. $\text{WhatPower}_7(49)$

20. $\text{WhatPower}_5(1)$

21. $\text{WhatPower}_3\left(\frac{1}{27}\right)$

22. $\text{WhatPower}_0(7)$

23. $\text{WhatPower}_1(12)$

24. $\text{WhatPower}_{-2}(16)$

25. $\text{WhatPower}_{-3}(27)$

26. $\text{WhatPower}_8(0)$

27. $\text{WhatPower}_5(-25)$

Describe the allowable values of b in the expression $\text{WhatPower}_b(a)$. Explain how you know.

Describe the allowable values of a in the expression $\text{WhatPower}_b(a)$. Explain how you know.