

HW 6-5 - Introduction to Roots

Make a factor tree for each of the following numbers. ~~Express~~ **Express** your answers as a product of prime numbers.

1. $8 \xrightarrow{-2} 4 \xrightarrow{-2} 2$
 $2 \cdot 2 \cdot 2$

2. 640

3. $144 \xrightarrow{-2} 72 \xrightarrow{-2} 36 \xrightarrow{-2} 18 \xrightarrow{-2} 9 \xrightarrow{-3} 3$
 $2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3$

Simplify each expression.

4. 5^3

13. $-\sqrt{121}$
 -11

5. $-\sqrt{144} = -12$

14. $\sqrt{64}$

6. 8^2

15. $\sqrt{\frac{4}{9}} = \frac{2}{3}$

7. $-\sqrt{324} = -18$

16. $\frac{6^2}{7^2}$

8. $\sqrt{36}$

17. $\sqrt{\frac{25}{36}} = \frac{5}{6}$

9. $\sqrt{100} = 10$

18. $\sqrt{400}$

10. 3^3

19. $\sqrt[3]{64} = 4$

11. $\frac{8^2}{11^2} = \frac{64}{121}$

20. $\sqrt[3]{1}$

12. 4^2

Simplify each expression.

21. $\sqrt[3]{8} = 2$

22. $\sqrt[3]{125}$

23. $\sqrt[3]{27} = 3$

24. $\sqrt{0.25}$

25. $\sqrt{0.0169} = 0.13$

26. $-\sqrt{\frac{64}{225}}$

27. $\sqrt{-\frac{16}{25}}$ Not real

28. $\sqrt{2.56}$

Solve for the given variable.

29. $v^2 = 81$

$v = 9$

30. $w^2 = \frac{9}{25}$

31. $a^2 = 1.21$

$a = 1.1$

32. $z^3 = \frac{1}{8}$

34. $x^3 = \frac{27}{64}$

35. $\sqrt{a} = 9$

$a = 81$

36. $\sqrt{b} = 4$

37. $\sqrt{x} = 16$

$x = 256$

33. $c^2 = \frac{9}{64}$

$c = \frac{3}{8}$

38. $\sqrt[3]{x} = 8$