

Irrational Exponents

_____ 1. Which of the following is equivalent to $4^{\sqrt{2}} * 4^{\sqrt{2}}$?

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|-------------------|--------------------|-------------------|--------------------|
| a. $4^{\sqrt{4}}$ | c. 16^4 | e. $4^{\sqrt{2}}$ | g. $16^{\sqrt{4}}$ |
| b. 4^4 | d. $16^{\sqrt{2}}$ | f. 16^2 | h. 4^2 |

_____ 2. Which of the following is equivalent to $5^{(\sqrt{3}+2)} * 5^{\sqrt{3}}$?

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|-----------------------|-----------|------------------------|-------------------|
| a. $5^{(2+\sqrt{3})}$ | c. 25^6 | e. $25^{(\sqrt{3}+1)}$ | g. $5^{\sqrt{6}}$ |
| b. $25^{\sqrt{6}}$ | d. 25^3 | f. $5^{(\sqrt{3}+2)}$ | h. 5^6 |

_____ 3. Which of the following is equivalent to $3^{\sqrt{2}} * 5^{\sqrt{2}}$?

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|-----------|--------------------|-------------------|--------------------|
| a. 15^2 | c. $3^{\sqrt{4}}$ | e. 3^2 | g. $15^{\sqrt{2}}$ |
| b. 15^4 | d. $15^{\sqrt{4}}$ | f. $3^{\sqrt{2}}$ | h. 3^4 |

4. What is the value of $(7^{\sqrt{3}})^{\sqrt{3}}$?

5. What is the value of $\frac{7^{(\sqrt{5}+2)}}{7^{(\sqrt{5}-2)}}$?

_____ 6. Which of the following is equivalent to $2^{\sqrt{2}} * 2^{\sqrt{2}}$?

- | | | | |
|-------------------|----------|-------------------|-------------------|
| a. $2^{\sqrt{2}}$ | c. 4^4 | e. $4^{\sqrt{2}}$ | g. $2^{\sqrt{4}}$ |
| b. $4^{\sqrt{4}}$ | d. 4^2 | f. 2^2 | h. 2^4 |

_____ 7. Which of the following is equivalent to $5^{(\sqrt{3}+2)} * 5^{\sqrt{3}}$?

- | | | | |
|------------------------|-----------------------|-----------------------|--------------------|
| a. $25^{(\sqrt{3}+1)}$ | c. 5^6 | e. $5^{\sqrt{6}}$ | g. $25^{\sqrt{6}}$ |
| b. 25^6 | d. $5^{(\sqrt{3}+2)}$ | f. $5^{(2+\sqrt{3})}$ | h. 25^3 |

_____ 8. Which of the following is equivalent to $7^{\sqrt{2}} * 2^{\sqrt{2}}$?

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|-------------------|-----------|--------------------|-------------------|
| a. 7^4 | c. 14^4 | e. $14^{\sqrt{4}}$ | g. $7^{\sqrt{4}}$ |
| b. $7^{\sqrt{2}}$ | d. 7^2 | f. $14^{\sqrt{2}}$ | h. 14^2 |

9. What is the value of $(2^{\sqrt{3}})^{\sqrt{3}}$?

10. What is the value of $\frac{6^{(\sqrt{3}+2)}}{6^{(\sqrt{3}-2)}}$?

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Answer Section

1. ANS: D
2. ANS: E
3. ANS: G
4. ANS: 343
5. ANS: 2401
6. ANS: E
7. ANS: A
8. ANS: F
9. ANS: 8
10. ANS: 1296

