

Irrational Exponents

_____ 1. Which of the following is equivalent to $9^{\sqrt{3}} * 9^{\sqrt{3}}$?

- | | | | |
|--------------------|-----------|-------------------|--------------------|
| a. $9^{\sqrt{3}}$ | c. 9^6 | e. $9^{\sqrt{6}}$ | g. 9^3 |
| b. $81^{\sqrt{6}}$ | d. 81^6 | f. 81^3 | h. $81^{\sqrt{3}}$ |

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

- | | | | |
|-----------------------|------------------------|-------------------|-----------------------|
| a. $6^{(2+\sqrt{2})}$ | c. 36^2 | e. 36^4 | g. 6^4 |
| b. $36^{\sqrt{4}}$ | d. $36^{(\sqrt{2}+1)}$ | f. $6^{\sqrt{4}}$ | h. $6^{(\sqrt{2}+2)}$ |

_____ 3. Which of the following is equivalent to $6^{\sqrt{3}} * 5^{\sqrt{3}}$?

- | | | | |
|--------------------|-------------------|-----------|--------------------|
| a. 6^3 | c. $6^{\sqrt{3}}$ | e. 6^6 | g. $30^{\sqrt{6}}$ |
| b. $30^{\sqrt{3}}$ | d. 30^3 | f. 30^6 | h. $6^{\sqrt{6}}$ |

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

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

_____ 6. Which of the following is equivalent to $4^{\sqrt{2}} * 4^{\sqrt{2}}$?

a. 4^2

c. $16^{\sqrt{4}}$

e. $4^{\sqrt{2}}$

g. 4^4

b. $4^{\sqrt{4}}$

d. 16^4

f. $16^{\sqrt{2}}$

h. 16^2

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

a. $9^{(\sqrt{2}+1)}$

c. 9^4

e. $3^{(2+\sqrt{2})}$

g. 3^4

b. $9^{\sqrt{4}}$

d. 9^2

f. $3^{\sqrt{4}}$

h. $3^{(\sqrt{2}+2)}$

_____ 8. Which of the following is equivalent to $9^{\sqrt{3}} * 9^{\sqrt{3}}$?

a. $81^{\sqrt{3}}$

c. 81^6

e. $81^{\sqrt{6}}$

g. 81^3

b. 9^3

d. $9^{\sqrt{6}}$

f. 9^6

h. $9^{\sqrt{3}}$

9. What is the value of $(5^{\sqrt{3}})^{\sqrt{3}}$?

10. What is the value of $\frac{2^{(\sqrt{5}+3)}}{2^{(\sqrt{5}-3)}}$?

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Answer Section

1. ANS: H
2. ANS: D
3. ANS: B
4. ANS: 729
5. ANS: 16
6. ANS: F
7. ANS: A
8. ANS: A
9. ANS: 125
10. ANS: 64

