#### 1A- Simplify and Evaluate Expressions

**1.** ![https://media.studyisland.com/cgi-bin/mimetex.cgi?\frac%7b13%5e%7b8%7d%7d%7b13%5e%7b3%7d%7d](data:None;base64...)

**2.** ![https://media.studyisland.com/cgi-bin/mimetex.cgi?9%5e%7b2%7d\%20\cdot\%209%5e%7b5%7d](data:None;base64...)

**3.** Evaluate, if z = 197. 

**4.** Simplify: 2(14 - |-10 + 2|) - |11 - 2|2

**5.** Simplify: ![https://media.studyisland.com/cgi-bin/mimetex.cgi?4\sqrt%7b7%7d](data:None;base64...)+ ![https://media.studyisland.com/cgi-bin/mimetex.cgi?\sqrt%7b28%7d](data:None;base64...)

**6.** Simplify: ![https://media.studyisland.com/cgi-bin/mimetex.cgi?7\sqrt%7b63%7d](data:None;base64...)- ![https://media.studyisland.com/cgi-bin/mimetex.cgi?\sqrt%7b28%7d](data:None;base64...)

**7.** Evaluate, if x = 145.  

**8.** Evaluate when *n* = 7. |*n* - 9| - |5 - *n*|

**9.** Evaluate when *n* = 5. 4|2 - 6*n*| + |4|

**10.** Simplify: |56 - 7 • 7| - 12|5 - 19|

**11.** Evaluate when *x* = 1. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?-4x%5e%7b3%7d%20\%20+%20\%205x%20\%20+%20\%205](data:None;base64...)

**12.** Evaluate when *x* = -5 and *y* = 3.

 ![https://media.studyisland.com/cgi-bin/mimetex.cgi?\frac%7bx%5e%7b6%7d%20\%20-%20\%20x%7d%7b5y%7d](data:None;base64...)

**13.** Evaluate if x = 145. 

**14.** Simplify: ![https://media.studyisland.com/cgi-bin/mimetex.cgi?6\sqrt%7b63%7d](data:None;base64...)- ![https://media.studyisland.com/cgi-bin/mimetex.cgi?\sqrt%7b28%7d](data:None;base64...)

**15.** Solve. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?\sqrt%7b12%7d\:%20\times%20\:2\sqrt%7b3%7d\%20=\%20?](data:None;base64...)

**16.** Evaluate when *x* = 6 and *y* = ![https://media.studyisland.com/cgi-bin/mimetex.cgi?\frac%7b3%7d%7b2%7d](data:None;base64...)

 ![https://media.studyisland.com/cgi-bin/mimetex.cgi?2xy%5e%7b2%7d](data:None;base64...)

**17.** Evaluate when *x* = -7 and *y* = -9.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\mid%202x%5e%7b4%7d%20\%20-%20\%208y%20\mid](data:None;base64...)

**18.** Simplify the following expression.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\left(\frac%7b1%7d%7b2%7d\right)%5e%7b4%7d%20\%20\cdot%20\%20\left(\frac%7b3%7d%7b7%7d\right)%5e%7b4%7d](data:None;base64...)

**19.** ![https://media.studyisland.com/cgi-bin/mimetex.cgi?\frac%7b7%5e%7b5%7d%7d%7b8%5e%7b5%7d%7d](data:None;base64...)

**20.** ![https://media.studyisland.com/cgi-bin/mimetex.cgi?10%5e%7b-3%7d](data:None;base64...)

**21.** ![https://media.studyisland.com/cgi-bin/mimetex.cgi?\sqrt%7b32%7d\:%20\times%20\:4\sqrt%7b2%7d\%20=\%20?](data:None;base64...)

**22.** Evaluate, if z = 325.



**23.** Evaluate when *n* = 4.

|3*n* - 7| + |-4|

**24.** Evaluate when *x* = -2 and *y* = 6.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\frac%7b2\mid%20x%20\mid%20\%20-%20\%20y%5e%7b3%7d%7d%7bx%7d](data:None;base64...)

**25.** Simplify: ![https://media.studyisland.com/cgi-bin/mimetex.cgi?3\sqrt%7b6%7d](data:None;base64...)+ ![https://media.studyisland.com/cgi-bin/mimetex.cgi?\sqrt%7b24%7d](data:None;base64...)

**26.** Simplify: |8(4 - 8) + |8 - 52||

**27.** Evaluate, if m = 9.



**28.** Simplify the following expression.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\frac%7b10%5e%7b7%7d%20\%20\cdot%20\%203%5e%7b7%7d%7d%7b30%5e%7b6%7d%7d](data:None;base64...)

**29.** Evaluate if m = 9.



**30.** Simplify the following expression.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\left(3%5e%7b3%7d\right)%5e%7b4%7d](data:None;base64...)

# Answers

1. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?13%5e%7b5%7d](data:None;base64...)

2. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?9%5e%7b7%7d](data:None;base64...)

3. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?96](data:None;base64...)

4. -69
5. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?6\sqrt%7b7%7d](data:None;base64...)
6. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?19\sqrt%7b7%7d](data:None;base64...)
7. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?44](data:None;base64...)

8. 0
9. 116
10. -161
11. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?6](data:None;base64...)
12. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?1042](data:None;base64...)

13. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?51](data:None;base64...)

14. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?16\sqrt%7b7%7d](data:None;base64...)
15. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?12](data:None;base64...)

16. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?27](data:None;base64...)
17. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?4874](data:None;base64...)
18. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?\left(\frac%7b3%7d%7b14%7d\right)%5e%7b4%7d](data:None;base64...)

19. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?\left(\frac%7b7%7d%7b8%7d\right)%5e%7b5%7d](data:None;base64...)

20. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?\frac%7b1%7d%7b10%5e%7b3%7d](data:None;base64...)

21. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?32](data:None;base64...)

22. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?131](data:None;base64...)

23. 9
24. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?106](data:None;base64...)
25. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?5\sqrt%7b6%7d](data:None;base64...)
26. 15
27. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?4](data:None;base64...)

28. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?30](data:None;base64...)

29. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?11](data:None;base64...)

30. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?3%5e%7b12%7d](data:None;base64...)

# Explanations

1. When dividing two or more exponential expressions with the same base, subtract the exponent of the denominator from the exponent of the numerator.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\begin%7beqnarray%7d\frac%7bx%5e%7bm%7d%7d%7bx%5e%7bn%7d%7d\%20&=&\%20x%5e%7b(m\%20-\%20n)%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\\frac%7b13%5e%7b8%7d%7d%7b13%5e%7b3%7d%7d\%20&=&\%20\frac%7b13\%20\times\%2013\%20\times\%2013\%20\times\%2013\%20\times\%20%2013\%20\times\%2013\%20\times\%2013\%20\times\%2013%7d%7b13\%20\times\%2013\%20\times\%2013%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=&\%2013\%20\times\%2013\%20\times\%2013\%20\times\%2013\%20\times\%2013\%20\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=&\%2013%5e%7b5%7d\end%7beqnarray%7d](data:None;base64...)

2. When multiplying two or more exponential expressions with the same base, add the exponents.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\begin%7beqnarray%7dx%5e%7bm%7dx%5e%7bn%7d\%20&=&\%20x%5e%7b(m\%20+\%20n)%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\9%5e%7b2%7d\%20\cdot\%209%5e%7b5%7d\%20&=&\%20(9\%20\times\%209)\%20\times\%20(9\%20\times\%209\%20\times\%209\%20\times\%209\%20\times\%209)\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=&\%209\%20\times\%209\%20\times\%209\%20\times\%209\%20\times\%209\%20\times\%209\%20\times\%209\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=&\%209%5e%7b7%7d\end%7beqnarray%7d](data:None;base64...)

3. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?\text%7bEvaluate%20for%20%7dz\,=\,197.\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\\begin%7barray%7d%7bc%7d\hspace*%7b500%7d%20\\%20%20\begin%7beqnarray%7d12%20\%20+\%206%20\sqrt%7bz\%20-\%201%7d\%20&=&%2012%20\%20+\%206%20\sqrt%7b197\%20-\%201%7d\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\%20&=&%2012%20\%20+\%206%20\sqrt%7b196%7d\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\%20&=&%2012%20\%20+\%206(14)\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\%20&=&%2012%20\%20+\%2084\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\%20&=&%2096\%20\end%7beqnarray%7d%20\\%20\end%7barray%7d](data:None;base64...)

4. Use the order of operations to simplify the expression.

|  |  |  |
| --- | --- | --- |
| 2(14 - |-10 + 2|) - |11 - 2|2 | = | 2(14 - |-8|) - |9|2 |
|  | = | 2(14 - 8) - 81 |
|  | = | 2(6) - 81 |
|  | = | 12 - 81 |
|  | = | **-69** |

5. Use the Product Property of Radicals to simplify.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\begin%7beqnarray%7d4\sqrt%7b7%7d\%20+\%20%20\sqrt%7b28%7d&=&%204%20\sqrt%7b7%7d\%20+\%20\sqrt%7b4\%20\cdot\%207\%20%7d\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\&=&4\sqrt%7b7%7d\%20+\%20\sqrt%7b4%7d\%20\cdot\%20\sqrt%7b7%7d\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\&=&4\sqrt%7b7%7d\%20+\%202\%20\cdot\%20\sqrt%7b7%7d\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\&=&4\sqrt%7b7%7d\%20+\%202\sqrt%7b7%7d\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\&=&6\sqrt%7b7%7d\end%7beqnarray%7d](data:None;base64...)

6. Use the Product Property of Radicals to simplify.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\begin%7beqnarray%7d7\sqrt%7b63%7d\%20-\%20\sqrt%7b28%7d\%20&=&%207\%20\sqrt%7b9\%20\cdot\%207\%20%7d\%20%20-\%20\%20\sqrt%7b4\%20\cdot\%207\%20%7d\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\&=&%207\%20\cdot\%20\sqrt%7b9%7d\%20\cdot\%20\sqrt%7b7%7d\%20-\%20\sqrt%7b4%7d\%20\cdot\%20\sqrt%7b7%7d\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\&=&\7\%20\cdot\%203\%20\cdot\%20\sqrt%7b7%7d\%20-\%20%202\%20\cdot\%20\sqrt%7b7%7d\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\&=&21\sqrt%7b7%7d\%20-\%202\sqrt%7b7%7d\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\&=&19\sqrt%7b7%7d\end%7beqnarray%7d](data:None;base64...)

7. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?\text%7bEvaluate%20for%20%7dx\,=\,145.\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\%20\begin%7barray%7d%7bc%7d\hspace*%7b500%7d%20\\\begin%7beqnarray%7d3%20\sqrt%7bx\%20-\%201%7d\%20%20+\%208%20&=&%203%20\sqrt%7b145\%20-\%201%7d\%20%20+\%208\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\%20&=&%203%20\sqrt%7b144%7d\%20%20+\%208\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\%20&=&%203(12)\%20+\%208%20\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\&=&%2036\%20+\%208\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\%20&=&%2044\%20\end%7beqnarray%7d\\\end%7barray%7d](data:None;base64...)

8. Absolute value is the magnitude of a number irrespective of its sign.

Evaluate the given expression piece-by-piece, using order of operations:

|*n* - 9| = |7 - 9| = |-2| = 2

|5 - *n*| = |5 - 7| = |-2| = 2

2 - 2 = **0**

9. Absolute value is the magnitude of a number irrespective of its sign.

Evaluate the given expression piece-by-piece, using order of operations:

|2 - 6*n*| = |2 - 6 × 5| = |2 - 30| = |-28| = 28

4 × 28 = 112

|4| = 4

112 + 4 = **116**

10. Use the order of operations to simplify the expression.

|  |  |  |
| --- | --- | --- |
| |56 - 7 • 7| - 12|5 - 19| | = | |56 - 49| - 12|-14| |
|  | = | |7| - 168 |
|  | = | **-161** |

11. To evaluate an algebraic expression at a given value, substitute and simplify.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\begin%7beqnarray%7d-4x%5e%7b3%7d%20\%20+%20\%205x%20\%20+%20\%205%20&=&%20-4\left(1\right)%5e%7b3%7d%20\%20+%20\%205\left(1\right)%20\%20+%20\%205\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=&%20-4%20\%20+%20\%205%20\%20+%20\%205\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=&%206\end%7beqnarray%7d](data:None;base64...)

12. To evaluate an algebraic expression at given values, substitute and simplify.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\begin%7beqnarray%7d\frac%7bx%5e%7b6%7d%20\%20-%20\%20x%7d%7b5y%7d%20&=&%20\frac%7b\left(-5\right)%5e%7b6%7d%20\%20-%20\%20\left(-5\right)%7d%7b5\left(3\right)%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=&%20\frac%7b15625%20\%20+%20\%205%7d%7b15%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=&%201042\end%7beqnarray%7d](data:None;base64...)

13. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?\text%7bEvaluate%20for%20%7dx\,=\,145.\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\%20\begin%7barray%7d%7bc%7d\hspace*%7b500%7d%20\\\begin%7beqnarray%7d4%20\sqrt%7bx\%20-\%201%7d\%20%20+\%203%20&=&%204%20\sqrt%7b145\%20-\%201%7d\%20%20+\%203\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\%20&=&%204%20\sqrt%7b144%7d\%20%20+\%203\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\%20&=&%204(12)\%20+\%203%20\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\&=&%2048\%20+\%203\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\%20&=&%2051\%20\end%7beqnarray%7d\\\end%7barray%7d](data:None;base64...)

14. Use the Product Property of Radicals to simplify.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\begin%7beqnarray%7d6\sqrt%7b63%7d\%20-\%20\sqrt%7b28%7d\%20&=&%206\%20\sqrt%7b9\%20\cdot\%207\%20%7d\%20%20-\%20\%20\sqrt%7b4\%20\cdot\%207\%20%7d\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\&=&%206\%20\cdot\%20\sqrt%7b9%7d\%20\cdot\%20\sqrt%7b7%7d\%20-\%20\sqrt%7b4%7d\%20\cdot\%20\sqrt%7b7%7d\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\&=&\6\%20\cdot\%203\%20\cdot\%20\sqrt%7b7%7d\%20-\%20%202\%20\cdot\%20\sqrt%7b7%7d\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\&=&18\sqrt%7b7%7d\%20-\%202\sqrt%7b7%7d\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\&=&16\sqrt%7b7%7d\end%7beqnarray%7d](data:None;base64...)

15. Multiply the coefficients together, and multiply the numbers under the radicals, then solve.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\begin%7balign*%7d\sqrt%7b12%7d\:%20\times%20\:2\sqrt%7b3%7d\%20&=\%20(1\%20\times\%202)\sqrt%7b(12\%20\times\%203)%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=\%202\sqrt%7b36%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=\%202\%20\times\%206\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=\%2012\end%7balign*%7d](data:None;base64...)

16. To evaluate an algebraic expression at given values, substitute and simplify.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\begin%7beqnarray%7d2xy%5e%7b2%7d%20&=&%202\left(6\right)\left(\frac%7b3%7d%7b2%7d\right)%5e%7b2%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=&%202\left(6\right)\left(\frac%7b9%7d%7b4%7d\right)\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=&%2027\end%7beqnarray%7d](data:None;base64...)

17. To evaluate an algebraic expression at given values, substitute and simplify.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\begin%7beqnarray%7d\mid%202x%5e%7b4%7d%20\%20-%20\%208y%20\mid%20&=&%20\mid%202\left(-7\right)%5e%7b4%7d%20\%20-%20\%208\left(-9\right)\mid\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=&%20\mid%204802%20\%20+%20\%2072\mid\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=&%20\mid%204874%20\mid\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=&%204874\end%7beqnarray%7d](data:None;base64...)

18. If the bases are different but the exponents are the same, then multiply the bases and keep the exponent.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\begin%7barray%7d%7brclC40C40C40%7dx%5e%7bm%7dy%5e%7bm%7d%20&=&%20\left(xy\right)%5e%7bm%7d\\%20%20%20\left(\frac%7b1%7d%7b2%7d\right)%5e%7b4%7d%20\%20\cdot%20\%20\left(\frac%7b3%7d%7b7%7d\right)%5e%7b4%7d%20&=&%20\left(\frac%7b1%7d%7b2%7d%20\%20\cdot%20\%20%20\frac%7b3%7d%7b7%7d%20\right)%5e%7b4%7d\\%20&=&%20\left(%20\frac%7b3%7d%7b14%7d\right)%5e%7b4%7d\end%7barray%7d](data:None;base64...)

19. If the bases are different but the exponents are the same, then divide the bases and keep the exponent.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\begin%7beqnarray%7d\frac%7bx%5e%7bm%7d%7d%7by%5e%7bm%7d%7d\%20&=&\%20\left(\frac%7bx%7d%7by%7d\right)%5e%7bm%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\\frac%7b7%5e%7b5%7d%7d%7b8%5e%7b5%7d%7d\%20&=&\%20\frac%7b7\%20\times\%207\%20\times\%207\%20\times\%207\%20\times\%207%7d%7b8\%20\times\%208\%20\times\%208\%20\times\%208\%20\times\%208%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=&\%20\frac%7b7%7d%7b8%7d\%20\times\%20\frac%7b7%7d%7b8%7d\%20\times\%20\frac%7b7%7d%7b8%7d\%20\times\%20\frac%7b7%7d%7b8%7d\%20\times\%20\frac%7b7%7d%7b8%7d\%20\%20\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=&\%20\left(\frac%7b7%7d%7b8%7d\right)%5e%7b5%7d\end%7beqnarray%7d](data:None;base64...)

20. A negative exponent means to divide by that number of factors instead of multiplying.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\begin%7beqnarray%7dx%5e%7b-m%7d\%20&=&\%20\frac%7b1%7d%7bx%5e%7bm%7d%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\10%5e%7b-3%7d\%20&=&\%20\frac%7b1%7d%7b10\%20\times\%2010\%20\times\%2010%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=&\%20\frac%7b1%7d%7b10%5e%7b3%7d%7d\end%7beqnarray%7d](data:None;base64...)

21. Multiply the coefficients together, and multiply the numbers under the radicals, then solve.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\begin%7balign*%7d\sqrt%7b32%7d\:%20\times%20\:4\sqrt%7b2%7d\%20&=\%20(1\%20\times\%204)\sqrt%7b(32\%20\times\%202)%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=\%204\sqrt%7b64%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=\%204\%20\times\%208\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=\%2032\end%7balign*%7d](data:None;base64...)

22. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?\text%7bEvaluate%20for%20%7dz\,=\,325.\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\\begin%7barray%7d%7bc%7d\hspace*%7b500%7d%20\\%20%20\begin%7beqnarray%7d5%20\%20+\%207%20\sqrt%7bz\%20-\%201%7d\%20&=&%205%20\%20+\%207%20\sqrt%7b325\%20-\%201%7d\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\%20&=&%205%20\%20+\%207%20\sqrt%7b324%7d\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\%20&=&%205%20\%20+\%207(18)\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\%20&=&%205%20\%20+\%20126\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\%20&=&%20131\%20\end%7beqnarray%7d%20\\%20\end%7barray%7d](data:None;base64...)

23. Absolute value is the magnitude of a number irrespective of its sign.

Evaluate the given expression piece-by-piece, using order of operations:

|3*n* - 7| = |3 × 4 - 7| = |12 - 7| = 5

|-4| = 4

5 + 4 = **9**

24. To evaluate an algebraic expression at given values, substitute and simplify.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\begin%7beqnarray%7d\frac%7b2\mid%20x%20\mid%20\%20-%20\%20y%5e%7b3%7d%7d%7bx%7d%20&=&%20\frac%7b2\mid%20-2%20\mid%20\%20-%20\%20\left(6\right)%5e%7b3%7d%7d%7b-2%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=&%20\frac%7b4%20\%20-%20\%20216%7d%7b-2%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=&%20106\end%7beqnarray%7d](data:None;base64...)

25. Use the Product Property of Radicals to simplify.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\begin%7beqnarray%7d3\sqrt%7b6%7d\%20+\%20%20\sqrt%7b24%7d&=&%203%20\sqrt%7b6%7d\%20+\%20\sqrt%7b4\%20\cdot\%206\%20%7d\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\&=&3\sqrt%7b6%7d\%20+\%20\sqrt%7b4%7d\%20\cdot\%20\sqrt%7b6%7d\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\&=&3\sqrt%7b6%7d\%20+\%202\%20\cdot\%20\sqrt%7b6%7d\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\&=&3\sqrt%7b6%7d\%20+\%202\sqrt%7b6%7d\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\&=&5\sqrt%7b6%7d\end%7beqnarray%7d](data:None;base64...)

26. Use the order of operations to simplify the expression.

|  |  |  |
| --- | --- | --- |
| |8(4 - 8) + |8 - 52|| | = | |8(-4) + |8 - 25|| |
|  | = | |-32 + |-17|| |
|  | = | |-32 + 17| |
|  | = | |-15| |
|  | = | **15** |

27. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?\text%7bEvaluate%20for%20%7dm\,=\,9.\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\%20\begin%7barray%7d%7bc%7d\hspace*%7b500%7d%20\\\begin%7beqnarray%7d\sqrt%7b4m%7d\%20-\%202%20&=&%20\sqrt%7b4(9)%7d\%20-\%202\\%20\vspace*%7b9%20\hspace*%7b-10%7d%20%7d\\%20&=&%20\sqrt%7b36%7d\%20-\%202\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\%20&=&%206\%20-\%202\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\%20&=&%204\%20\end%7beqnarray%7d\\\end%7barray%7d](data:None;base64...)

28. If the bases are different but the exponents are the same, then multiply the bases and keep the exponent. This property can be used to simplify the numerator.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\begin%7barray%7d%7brclC55C55C55C55C55%7dx%5e%7bm%7dy%5e%7bm%7d%20\%20&=&%20\%20(xy)%5e%7bm%7d\\%20%20\frac%7b10%5e%7b7%7d%20\%20\cdot%20\%203%5e%7b7%7d%7d%7b30%5e%7b6%7d%7d%20&=&%20\frac%7b(10%20\%20\cdot%20\%203)%5e%7b7%7d%7d%7b30%5e%7b6%7d%7d\\%20&=&%20\frac%7b30%5e%7b7%7d%7d%7b30%5e%7b6%7d%7d%20\end%7barray%7d](data:None;base64...)

When dividing two or more exponential expressions with the same base, subtract the exponent of the denominator from the exponent of the numerator.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\begin%7barray%7d%7brclC55C55C45C45%7d\frac%7bx%5e%7bm%7d%7d%7bx%5e%7bn%7d%7d\%20&=&\%20x%5e%7b(m\%20-\%20n)%7d\\%20%20\frac%7b30%5e%7b7%7d%7d%7b30%5e%7b6%7d%7d%20&=&%2030%5e%7b(7%20\%20-%20\%206)%7d\\%20&=&%2030%5e%7b1%7d%20\\%20&=&%2030%20\end%7barray%7d](data:None;base64...)

29. ![https://media.studyisland.com/cgi-bin/mimetex.cgi?\text%7bEvaluate%20for%20%7dm\,=\,9.\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\%20\begin%7barray%7d%7bc%7d\hspace*%7b500%7d%20\\\begin%7beqnarray%7d\sqrt%7b4m%7d\%20+\%205%20&=&%20\sqrt%7b4(9)%7d\%20+\%205\\%20\vspace*%7b9%20\hspace*%7b-10%7d%20%7d\\%20&=&%20\sqrt%7b36%7d\%20+\%205\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\%20&=&%206\%20+\%205\\%20\vspace*%7b9%20\hspace*%7b-10%7d%7d%20\\%20&=&%2011\%20\end%7beqnarray%7d\\\end%7barray%7d](data:None;base64...)

30. When an exponential expression is raised to a power, multiply the exponents.

![https://media.studyisland.com/cgi-bin/mimetex.cgi?\begin%7beqnarray%7d(x%5e%7bm%7d)%5e%7bn%7d\%20&=&\%20x%5e%7b(m\%20\times\%20n)%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\\left(3%5e%7b3%7d\right)%5e4\%20&=&\%20(3\%20\times\%203\%20\times\%203)%5e%7b4%7d\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=&\%20(3\%20\times\%203\%20\times\%203)(3\%20\times\%203\%20\times\%203)(3\%20\times\%203\%20\times\%203)(3\%20\times\%203\%20\times\%203)\%20\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=&\%203\%20\times\%203\%20\times\%203\%20\times\%203\%20\times\%203\%20\times\%203\%20\times\%203\%20\times\%203\%20\times\%203\%20\times\%203\%20\times\%203\%20\times\%203\%20\\\vspace*%7b9%20\hspace*%7b-10%7d%7d\\&=&\%203%5e%7b12%7d\end%7beqnarray%7d](data:None;base64...)