



THIRD SPACE
LEARNING

How to simplify radicals Worksheet

Algebra

Grades 9 to 12

Skill Questions

Name:

Date:

1 Simplify the radical.

$$\pm \sqrt{7^2 \cdot 9^2} = \underline{\hspace{2cm}}$$

Answer

2 Simplify the radical.

$$\pm \sqrt{(-7)^2 \cdot (-9)^2} = \underline{\hspace{2cm}}$$

Answer

3 Simplify the radical.

$$\sqrt{32} = \sqrt{16 \cdot 2} = \underline{\hspace{2cm}}$$

Answer

4 Simplify the radical.

$$-\sqrt{500} = -\sqrt{5 \cdot 100} = \underline{\hspace{2cm}}$$

Answer

5 Simplify the radical.

$$\sqrt{x^6} = \underline{\hspace{2cm}}$$

Answer

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6 Simplify the radical.

$$\sqrt{y^{13}} = \underline{\hspace{2cm}}$$

Answer

7 Simplify the radical.

$$-\sqrt{4h^{10}} = \underline{\hspace{2cm}}$$

Answer

8 Simplify the radical.

$$\sqrt{24m^9} = \underline{\hspace{2cm}}$$

Answer

9 Simplify the radical.

$$\sqrt{64x^5y^8} = \underline{\hspace{2cm}}$$

Answer

10 Simplify the radical.

$$-\sqrt{102xy^{11}} = \underline{\hspace{2cm}}$$

Answer

Applied Questions

- 11 Ariel simplified a radical and got $5\sqrt{17}$. Show the original radical, with all the terms under the radical.

Answer

- 12 Jake simplified a radical and got $-2x^4\sqrt{13xy}$. Show the original radical, with all the terms under the radical.

Answer

- 13 Arjun wrote the equation $\sqrt{32x^8} = 2x^4\sqrt{4}$. Do you agree with Arjun's equation? Explain any errors.

Answer

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- 14** Blane has a square TV with each side measuring 22 inches. He calculates the diagonal length with the expression $\sqrt{22^2 + 22^2}$. Simplify Blane's expression and estimate the diagonal length of the TV.

Answer

- 15** A square has an area of $56x^5y$. What is the length of one side?

Answer

Answers

Question number	Question	Answers	Standard
1	Simplify the radical. $\pm \sqrt{7^2 \cdot 9^2} = \underline{\hspace{2cm}}$	± 63	HSN-RN.A.2 HSN-RN.B.3
2	Simplify the radical. $\pm \sqrt{(-7)^2 \cdot (-9)^2} = \underline{\hspace{2cm}}$	± 63	HSN-RN.A.2 HSN-RN.B.3
3	Simplify the radical. $\sqrt{32} = \sqrt{16 \cdot 2} = \underline{\hspace{2cm}}$	$4\sqrt{2}$	HSN-RN.A.2 HSN-RN.B.3
4	Simplify the radical. $-\sqrt{500} = -\sqrt{5 \cdot 100} = \underline{\hspace{2cm}}$	$-10\sqrt{5}$	HSN-RN.A.2 HSN-RN.B.3
5	Simplify the radical. $\sqrt{x^6} = \underline{\hspace{2cm}}$	x^3	HSN-RN.A.2 HSN-RN.B.3
6	Simplify the radical. $\sqrt{y^{13}} = \underline{\hspace{2cm}}$	$y^6\sqrt{y}$	HSN-RN.A.2 HSN-RN.B.3
7	Simplify the radical. $-\sqrt{4h^{10}} = \underline{\hspace{2cm}}$	$-2h^5$	HSN-RN.A.2

How to simplify radicals Worksheet | Grades 9 to 12 | Answers

Question number	Question	Answers	Standard
8	Simplify the radical. $\sqrt{24m^9} = \underline{\hspace{2cm}}$	$2m^4\sqrt{6m}$	HSN-RN.A.2 HSN-RN.B.3
9	Simplify the radical. $\sqrt{64x^5y^8} = \underline{\hspace{2cm}}$	$8x^2y^4\sqrt{x}$	HSN-RN.A.2 HSN-RN.B.3
10	Simplify the radical. $-\sqrt{102xy^{11}} = \underline{\hspace{2cm}}$	$-y^5\sqrt{102xy}$	HSN-RN.A.2 HSN-RN.B.3
11	Ariel simplified a radical and got $5\sqrt{17}$. Show the original radical, with all the terms under the radical.	$\sqrt{425}$	HSN-RN.A.2 HSN-RN.B.3
12	Jake simplified a radical and got $-2x^4\sqrt{13xy}$. Show the original radical, with all the terms under the radical.	$-\sqrt{52x^9y}$	HSN-RN.A.2 HSN-RN.B.3
13	Arjun wrote the equation $\sqrt{32x^8} = 2x^4\sqrt{4}$. Do you agree with Arjun's equation? Explain any errors.	Answers will vary. Example answer: Arjun is wrong, because $\sqrt{32x^8} = 4x^4\sqrt{2}$. Arjun mixed up the 2 outside the radical and the 4 under the radical.	HSN-RN.A.2 HSN-RN.B.3

How to simplify radicals Worksheet | Grades 9 to 12 | Answers




Question number	Question	Answers	Standard
14	Blane has a square TV with each side measuring 22 inches. He calculates the diagonal length with the expression $\sqrt{22^2 + 22^2}$. Simplify Blane's expression and estimate the diagonal length of the TV.	$22\sqrt{2} \approx 31.11$	HSN-RN.A.2 HSN-RN.B.3
15	A square has an area of $56x^5y$. What is the length of one side?	$2x^2\sqrt{14xy}$	HSN-RN.A.2 HSN-RN.B.3

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