Algebra 10.2

Simplifying Radicals Cheat Sheet

Roots of Perfect Squares $\sqrt{0}$

$\sqrt{1}$	$\sqrt{4}$	$\sqrt{9}$	$\sqrt{16}$	$\sqrt{25}$	$\sqrt{36}$
$\sqrt{49}$	$\sqrt{64}$	$\sqrt{81}$	$\sqrt{100}$	$\sqrt{121}$	$\sqrt{144}$
$\sqrt{169}$	$\sqrt{196}$	$\sqrt{225}$	$\sqrt{x^2}$	$\sqrt{x^4}$	$\sqrt{x^6}$

Common Roots of Not-Perfect Square Numbers. Simplify.

$\sqrt{8}$	$\sqrt{12}$	$\sqrt{18}$	$\sqrt{20}$	$\sqrt{24}$	$\sqrt{27}$
$\sqrt{28}$	$\sqrt{32}$	$\sqrt{40}$	$\sqrt{44}$	$\sqrt{45}$	$\sqrt{48}$
$\sqrt{50}$	$\sqrt{52}$	$\sqrt{54}$	$\sqrt{56}$	$\sqrt{60}$	$\sqrt{63}$
$\sqrt{68}$	$\sqrt{72}$	$\sqrt{75}$	$\sqrt{80}$	$\sqrt{90}$	$\sqrt{96}$
$\sqrt{98}$	$\sqrt{99}$	$\sqrt{108}$	$\sqrt{125}$	$\sqrt{150}$	$\sqrt{180}$
$\sqrt{200}$	$\sqrt{x^3}$	$\sqrt{x^5}$	$\sqrt{x^7}$	$\sqrt{x^9}$	$\sqrt{x^{11}}$

SIMPLIFYING SQUARE ROOTS OF VARIABLE EXPRESSIONS QUIZ

name: date:

Simplify each radical. Write the letter from the answer column in the spaces.

A	$5y^4\sqrt{7}$
B	$2x^3\sqrt{7y}$
C	$-6y^2\sqrt{11y}$
D	$28x^3y^4\sqrt{6x}$
E	$9y^2\sqrt{2x}$
F	$40x^2\sqrt{x}$
G	$4x^4\sqrt{x}$
H	$40y^7\sqrt{2}$
I	$2x\sqrt{15}$
J	$6y\sqrt{6}$
K	$3x^3y^6\sqrt{6x}$
L	$15y^7\sqrt{3}$
M	$9x^3y\sqrt{y}$
N	$-8x^8y\sqrt{3y}$
O	$16x^2y^4\sqrt{2y}$
P	$9x^3y^4\sqrt{y}$
Q	$x^5y^4\sqrt{2}$
R	$6x^2\sqrt{7x}$
S	$5x^5y\sqrt{11}$
T	$5xy^2\sqrt{3x}$

$2y\sqrt{54} =$ letter	$\sqrt{60x^2} =$ letter	$3x^2\sqrt{28x} =$ letter	$\sqrt{175y^8} =$ letter
$8\sqrt{8x^4y^9} =$ letter	$\sqrt{75x^3y^4} =$ letter	$4\sqrt{100x^5} =$ letter	$-2\sqrt{99y^5} =$ letter
$\sqrt{81x^6y^3} =$ letter	$\sqrt{28x^6y} =$ letter	$\sqrt{162xy^4} =$ letter	$3y^7\sqrt{75} =$ letter
$7x^3\sqrt{96xy^8} =$ letter	$\sqrt{275x^{10}y^2} =$ letter	$\sqrt{81x^6y^9} =$ letter	$8\sqrt{50y^{14}} =$ letter
$\sqrt{2x^{10}y^8} =$ letter	$\sqrt{54x^7y^{12}} =$ letter	$-4\sqrt{12x^{16}y^3} =$ letter	$\sqrt{16x^9} =$ letter

Simplifying Radicals Cheat Sheet

Key

Roots of Perfect Squares

$\sqrt{0} = 0$

$\sqrt{1} = 1$	$\sqrt{4} = 2$	$\sqrt{9} = 3$	$\sqrt{16} = 4$	$\sqrt{25} = 5$	$\sqrt{36} = 6$
$\sqrt{49} = 7$	$\sqrt{64} = 8$	$\sqrt{81} = 9$	$\sqrt{100} = 10$	$\sqrt{121} = 11$	$\sqrt{144} = 12$
$\sqrt{169} = 13$	$\sqrt{196} = 14$	$\sqrt{225} = 15$	$\sqrt{x^2} = x$	$\sqrt{x^4} = x^2$	$\sqrt{x^6} = x^3$

Common Roots of Not-Perfect Square Numbers. Simplify.

$\sqrt{8}$ $\sqrt{4}\sqrt{2}$ $2\sqrt{2}$	$\sqrt{12}$ $\sqrt{4}\sqrt{3}$ $2\sqrt{3}$	$\sqrt{18}$ $\sqrt{9}\sqrt{2}$ $3\sqrt{2}$	$\sqrt{20}$ $\sqrt{4}\sqrt{5}$ $2\sqrt{5}$	$\sqrt{24}$ $\sqrt{4}\sqrt{6}$ $2\sqrt{6}$	$\sqrt{27}$ $\sqrt{9}\sqrt{3}$ $3\sqrt{3}$
$\sqrt{28}$ $\sqrt{4}\sqrt{7}$ $2\sqrt{7}$	$\sqrt{32}$ $\sqrt{2}\sqrt{16}$ $4\sqrt{2}$	$\sqrt{40}$ $\sqrt{4}\sqrt{10}$ $2\sqrt{10}$	$\sqrt{44}$ $\sqrt{4}\cdot\sqrt{11}$ $2\sqrt{11}$	$\sqrt{45}$ $\sqrt{9}\sqrt{5}$ $3\sqrt{5}$	$\sqrt{48}$ $\sqrt{16}\sqrt{3}$ $4\sqrt{3}$
$\sqrt{50}$ $\sqrt{25}\sqrt{2}$ $5\sqrt{2}$	$\sqrt{52}$ $\sqrt{4}\sqrt{13}$ $2\sqrt{13}$	$\sqrt{54}$ $\sqrt{9}\sqrt{6}$ $3\sqrt{6}$	$\sqrt{56}$ $\sqrt{4}\sqrt{14}$ $2\sqrt{14}$	$\sqrt{60}$ $\sqrt{4}\sqrt{15}$ $2\sqrt{15}$	$\sqrt{63}$ $\sqrt{9}\sqrt{7}$ $3\sqrt{7}$
$\sqrt{68}$ $\sqrt{4}\sqrt{17}$ $2\sqrt{17}$	$\sqrt{72}$ $\sqrt{36}\sqrt{2}$ $6\sqrt{2}$	$\sqrt{75}$ $\sqrt{25}\sqrt{3}$ $5\sqrt{3}$	$\sqrt{80}$ $\sqrt{16}\sqrt{5}$ $4\sqrt{5}$	$\sqrt{90}$ $\sqrt{9}\sqrt{10}$ $3\sqrt{10}$	$\sqrt{96}$ $\sqrt{16}\sqrt{6}$ $4\sqrt{6}$
$\sqrt{98}$ $\sqrt{49}\sqrt{2}$ $7\sqrt{2}$	$\sqrt{99}$ $\sqrt{9}\sqrt{11}$ $3\sqrt{11}$	$\sqrt{108}$ $\sqrt{36}\sqrt{3}$ $6\sqrt{3}$	$\sqrt{125}$ $\sqrt{25}\sqrt{5}$ $5\sqrt{5}$	$\sqrt{150}$ $\sqrt{25}\sqrt{6}$ $5\sqrt{6}$	$\sqrt{180}$ $\sqrt{36}\sqrt{5}$ $6\sqrt{5}$
$\sqrt{200}$ $\sqrt{25}\sqrt{8}$ $5\sqrt{4}\sqrt{2}$ $5\cdot 2\sqrt{2}$ $10\sqrt{2}$	$\sqrt{x^3}$ $x\sqrt{x}$	$\sqrt{x^5}$ $x^2\sqrt{x}$	$\sqrt{x^7}$ $x^3\sqrt{x}$	$\sqrt{x^9}$ $x^4\sqrt{x}$	$\sqrt{x^{11}}$ $x^5\sqrt{x}$

11.3

SIMPLIFYING SQUARE ROOTS OF VARIABLE EXPRESSIONS QUIZ

name: date:

Simplify each radical. Write the letter from the answer column in the spaces.

A	$5y^4\sqrt{7}$
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L	$15y^7\sqrt{3}$
M	$9x^3y\sqrt{y}$
N	$-8x^8y\sqrt{3y}$
O	$16x^2y^4\sqrt{2y}$
P	$9x^3y^4\sqrt{y}$
Q	$x^5y^4\sqrt{2}$
R	$6x^2\sqrt{7x}$
S	$5x^5y\sqrt{11}$
T	$5xy^2\sqrt{3x}$

$2y\sqrt{54} =$ 9·6 $2 \cdot 3y\sqrt{6}$ $6y\sqrt{6}$ letter J	$\sqrt{60x^2} =$ 4 15 $2x\sqrt{15}$ letter I	$3x^2\sqrt{28x} =$ 4·7 $3 \cdot 2x^2\sqrt{7x}$ $6x^2\sqrt{7x}$ letter R	$\sqrt{175y^8} =$ 25 7 $5y^4\sqrt{7}$ letter A
$8\sqrt{8x^4y^9} =$ 4 2 $2 \cdot 8x^2y^4\sqrt{2y}$ $16x^2y^4\sqrt{2y}$ letter O	$\sqrt{75x^3y^4} =$ 25 3 $5xy^2\sqrt{3x}$ letter T	$4\sqrt{100x^5} =$ $4 \cdot 10x^2\sqrt{x}$ $40x^2\sqrt{x}$ letter F	$-2\sqrt{99y^5} =$ 11 9 $-2 \cdot 3y^2\sqrt{11y}$ $-6y^2\sqrt{11y}$ letter C
$\sqrt{81x^6y^3} =$ $9x^3y\sqrt{y}$ letter M	$\sqrt{28x^6y} =$ 4 7 $2x^3\sqrt{7y}$ letter B	$\sqrt{162xy^4} =$ 81 2 $9y^2\sqrt{2x}$ letter E	$3y^7\sqrt{75} =$ 25 3 $3 \cdot 5y^7\sqrt{3}$ $15y^7\sqrt{3}$ letter L
$7x^3\sqrt{96xy^8} =$ 16·6 $7 \cdot 4x^3y^4\sqrt{6x}$ $28x^3y^4\sqrt{6x}$ letter D	$\sqrt{275x^{10}y^2} =$ 11·25 $5x^5y\sqrt{11}$ letter S	$\sqrt{81x^6y^9} =$ $9x^3y^4\sqrt{y}$ letter P	$8\sqrt{50y^{14}} =$ 25 2 $8 \cdot 5y^7\sqrt{2}$ $40y^7\sqrt{2}$ letter H
$\sqrt{2x^{10}y^8} =$ $x^5y^4\sqrt{2}$ letter Q	$\sqrt{54x^7y^{12}} =$ 9 6 $3x^3y^6\sqrt{6x}$ letter K	$-4\sqrt{12x^{16}y^3} =$ 4·3 $-4 \cdot 2x^8y\sqrt{3y}$ $-8x^8y\sqrt{3y}$ letter N	$\sqrt{16x^9} =$ $4x^4\sqrt{x}$ letter G