Algebra I

11-5
Square Roots of
Variable Expressions

$\sqrt{7^2}$ = 7

$\sqrt{2^2}$ = 2

$\sqrt{(642)^2}$ = 642

$\sqrt{(-4)^2}$ = 4 , answer to a square root cannot be negative

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True / False

1) x is always positive.   False; $x = -7$

2) $-x$ is always negative.   False; $x = -7$ $-x = -(-7)$ $= 7$

3) x^2 is always positive.   False; $0^2 = 0$, which is not positive.

4) x^2 is never negative.   True.

5) The answer to a square root may not be **negative**

Thus, $\sqrt{x^2}$ = $|x|$

Simplify. (pg 526)   [Then do part b) and round answers to the nearest hundredth.]

8, 10
5, 16
4, 20
8, 40
1, 80

1) $\sqrt{121a^2}$

$11 \cdot |a|$

9) $\sqrt{80a^2b^2}$

$\sqrt{16 \cdot 5 \cdot a^2 \cdot b^2}$
a) $4|ab|\sqrt{5}$
b) $8.94\,|ab|$

13) $\pm\sqrt{54x^2y^3}$ 1,54 2,27 3,18

$\pm\sqrt{9 \cdot 6 \cdot x^2 \cdot y^2 \cdot y}$

a) $\pm 3|xy|\sqrt{6y}$

b) $\pm 7.35\,|xy|\sqrt{y}$

17) $\pm\sqrt{\dfrac{100f^{10}}{121}}$ a) $\pm \dfrac{10|f^5|}{11}$

b) $\pm .90\,|f^5|$

Solve.

27) $\sqrt{x^2} = 25$

$|x| = 5$

$x = \pm 5$

$\{\pm 5\}$

35) $81y^2 - 16 = 0$ $+16$ $+16$

$\dfrac{81y^2}{81} = \dfrac{16}{81}$

$\sqrt{y^2} = \sqrt{\dfrac{16}{81}}$

$|y| = \dfrac{4}{9}$

$\{\pm\dfrac{4}{9}\}$

Solve. Round each root to the nearest tenth.

43) $c^2 - 212 = 0$ $+212$ $+212$

$\sqrt{c^2} = \sqrt{212}$

$|c| = 14.56$

$\{\pm 14.56\}$

Assignment:

Pg. 526
2-50 even,
(skip 26)

For questions 2-24, do
    part a) simplify
    part b) round to hundredths,
        if necessary