Name: KEY
Date:

Square Root Assignment

1) Simplify without a calculator. Then use a calculator to check.

a) $\sqrt{100}$ b) $\sqrt{16}$ c) $\sqrt{49}$ d) $\sqrt{1}$ e) $\sqrt{121}$ f) $\sqrt{144}$

10 4 7 1 11 12

2) Simplify with a calculator. Round to the nearest hundredth.

a) $\sqrt{2}$ b) $\sqrt{12}$ c) $\sqrt{90}$ d) $\sqrt{21.5}$

1.41 3.46 9.49 4.64

3) Find the side length of each square with the following area:

a) $36m^2$ b) $81cm^2$ c) $20.25m^2$

$\sqrt{36}$ $\sqrt{81}$ $\sqrt{20.25}$

$= 6m$ $= 9cm$ $= 4.5m$

4) Simplify without a calculator as a fraction in lowest terms. Then use a calculator to check.

a) $\sqrt{\frac{9}{16}} = \frac{\sqrt{9}}{\sqrt{16}} = \frac{3}{4}$ b) $\sqrt{\frac{25}{64}} = \frac{\sqrt{25}}{\sqrt{64}} = \frac{5}{8}$ c) $\sqrt{\frac{1}{49}} = \frac{\sqrt{1}}{\sqrt{49}} = \frac{1}{7}$ d) $\sqrt{\frac{81}{100}} = \frac{\sqrt{81}}{\sqrt{100}} = \frac{9}{10}$

5) Simplify without a calculator. Then use a calculator to check.

a) $\sqrt{0.04}$ b) $\sqrt{0.36}$ c) $\sqrt{0.0001}$ d) $\sqrt{0.0144}$

0.2 0.6 0.01 0.12

6) We generally imagine that the resulting square root is smaller than its square (look at question #2). Explain why the square root values from #5 are bigger than the original square.

ex $\sqrt{0.04}$ $= 0.2$ ← the square root is bigger than the square (0.04)

0.2 is smaller than 1, so if you multiply it to itself (0.2×0.2), it results in a smaller number

$0.2 \times 1 = 0.2$

$0.2 \times 0.2 = 0.04$

↑ smaller than 1 ↑ smaller than 0.2

7) Explain why it is not possible to square root a negative number.

There is no way to multiply two identical numbers and end up with a negative number

pos × pos = pos
neg × neg = pos

only way to get a neg: pos × neg = neg
neg × pos = neg

different signs: cannot be identical