Without a calculator

1) Find the perfect square whose square root is

a) 16 b) $\frac{9}{4}$

2)Are the following fractions or decimals perfect squares? Explain

a) 1.69 b) 0.025 c) $\frac{32}{18}$ d) $\frac{1}{3}$

Without a calculator

1) Find the perfect square whose square root is

a) 16

$(\sqrt{x})^2 = (16)^2$

$x = 256$

b) $\frac{9}{4}$

$\sqrt{x} = \frac{9}{4}$

$x = \frac{81}{16}$

2)Are the following fractions or decimals perfect squares? Explain

a) 1.69

$\sqrt{\frac{169}{100}}$

$= \frac{13}{10}$

P.S

b) 0.025

$\sqrt{\frac{25}{1000}}$

$= \frac{5}{?}$

Not P.S

c) $\frac{32}{18}$ ÷2 ÷2

$\sqrt{\frac{16}{9}}$

$= \frac{4}{3}$

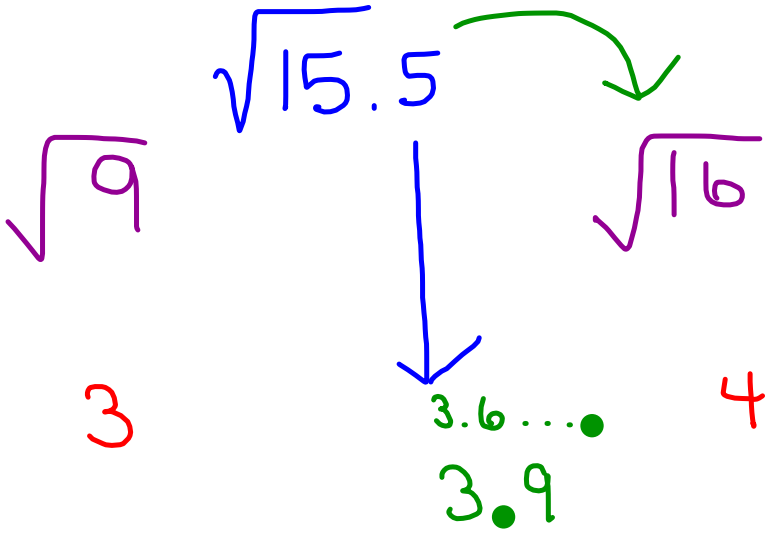
P.S

d) $\frac{1}{\sqrt{3}}$

$= \frac{1}{?}$

= Not P.S

Estimate the square root of 15.5



$$\sqrt{\frac{5}{8}} \cdot \sqrt{\frac{4}{9}} = \frac{2}{3}$$

Without a calculator

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$x = 256$

b) $\frac{9}{4}$

$\sqrt{x} = \frac{9}{4}$

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Not P.S

Mid Unit Review

Page: 21
Questions:
2acd,3abcd,4ac,5,6,7, 8ab,9,10, 11ace

Pythagorean Theorem Answers

1) 8.1 2)5.2 3)13.8 4) 12.7

5) 11.8 6) 3.5 7) No 8) Yes

9) No 10)Yes 11)5.6 12) 8.8

13) 1.9 14) 10.1

2b

3 bcf

5

8 ac

9 ab

Name _____ Date _____

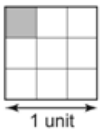
Master 1.16

Extra Practice 1

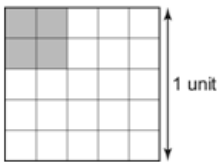
Lesson 1.1: Square Roots of Perfect Squares

1. Use each diagram to determine the value of the square root.

a) $\sqrt{\frac{1}{9}}$



b) $\sqrt{0.16}$



2. Which numbers below are perfect squares? How do you know?

a) $\frac{25}{121}$ **b)** 2.89 **c)** $\frac{2}{50}$ **d)** 0.004

3. Calculate the number whose square root is:

a) $\frac{5}{7}$ **b)** 1.6 **c)** 0.92 **d)** $\frac{10}{9}$

4. Determine the value of each square root.

a) $\sqrt{\frac{225}{49}}$ **b)** $\sqrt{\frac{9}{25}}$ **c)** $\sqrt{\frac{400}{324}}$ **d)** $\sqrt{\frac{8}{98}}$

5. Determine the value of each square root.

a) $\sqrt{6.76}$ **b)** $\sqrt{327.61}$ **c)** $\sqrt{0.0025}$ **d)** $\sqrt{0.0225}$

6. The area of a square garden is 12.25 m^2.

a) Determine the perimeter of the garden.

b) The owner decides to put a gravel pathway around the garden.
This reduces the area of the garden by 4.96 m^2.
What is the new side length of the garden?

Name _____ Date _____

Master 1.17

Extra Practice 2

Lesson 1.2: Square Roots of Non-Perfect Squares

1. Which numbers below are perfect squares? How do you know?

a) $\sqrt{\frac{16}{53}}$ b) $\sqrt{\frac{1}{25}}$ c) $\sqrt{0.009}$ d) $\sqrt{10.24}$

2. State the benchmark(s) you could use to approximate each square root.

a) $\sqrt{29.4}$ b) $\sqrt{0.41}$ c) $\sqrt{\frac{18}{37}}$ d) $\sqrt{\frac{14}{3}}$

3. Use benchmarks to approximate each square root to the nearest tenth.

a) $\sqrt{11.6}$ b) $\sqrt{0.39}$ c) $\sqrt{\frac{21}{2}}$ d) $\sqrt{\frac{11}{52}}$

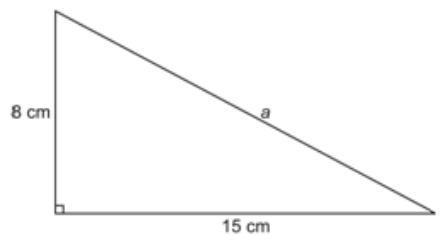
4. Suppose the $\sqrt{\ }$ key on your calculator is broken. Explain how you could use your calculator to estimate $\sqrt{58.6}$ to the nearest tenth.

5. Use a calculator to approximate each square root to the nearest tenth.

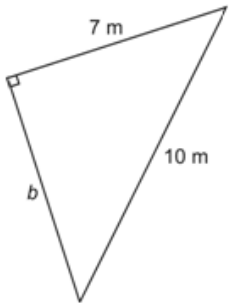
a) $\sqrt{14.29}$ b) $\sqrt{\frac{15}{8}}$ c) $\sqrt{\frac{2}{19}}$ d) $\sqrt{0.7}$

6. In each triangle, determine the unknown length to the nearest tenth of a unit where necessary.

a)



b)



Lesson 1.1

1. **a)** $\frac{1}{3}$ **b)** 0.4

2. **a)** Yes, both 25 and 121 are perfect squares.

b) Yes, $\sqrt{2.89} = \sqrt{\frac{289}{100}} = \frac{17}{10}$

c) Yes, $\frac{2}{50} = \frac{4}{100}$ and $\sqrt{\frac{4}{100}} = \frac{2}{10} = 0.2$

d) No, $0.004 = \frac{4}{1000}$ and 1000 is not a perfect square.

3. **a)** $\frac{25}{49}$ **b)** 2.56

c) 0.8464 **d)** $\frac{100}{81}$

4. **a)** $\frac{15}{7}$ **b)** $\frac{3}{5}$

4. **a)** $\frac{15}{7}$ **b)** $\frac{3}{5}$

c) $\frac{20}{18}$, or $\frac{10}{9}$

d) $\sqrt{\frac{8}{98}} = \sqrt{\frac{4}{49}} = \frac{2}{7}$

5. **a)** 2.6 **b)** 18.1
c) 0.05 **d)** 0.15

6. **a)** Side length in metres = $\sqrt{12.25} = 3.5$
So, perimeter of garden is 4×3.5 m, or 14 m.

b) New area of garden: $12.25\ m^2 - 4.96\ m^2 = 7.29\ m^2$
New side length in metres:
$\sqrt{7.29} = 2.7$

Extra Practice 2 – Master 1.17

Lesson 1.2

1. **a)** No, 53 is not a perfect square.
   b) Yes, both 1 and 25 are perfect squares.
   c) No, $\sqrt{0.009} = \sqrt{\frac{9}{1000}}$, and 1000 is not a perfect square.
   d) Yes, $\sqrt{10.24} = \sqrt{\frac{1024}{100}}$ and both 1024 and 100 are perfect squares.
2. **a)** $\sqrt{25} = 5$ and $\sqrt{36} = 6$
   b) $\sqrt{0.36} = 0.6$ and $\sqrt{0.49} = 0.7$
   c) $\sqrt{\frac{18}{37}} \doteq \sqrt{\frac{16}{36}}$
   d) $\sqrt{\frac{14}{3}} \doteq \sqrt{4}$
3. **a)** $\sqrt{11.6}$ is between $\sqrt{9} = 3$ and $\sqrt{16} = 4$, but closer to 3. Try 3.4: $3.4^2 = 11.56$.
   So, $\sqrt{11.6} \doteq 3.4$
   b) $\sqrt{0.39} \doteq \sqrt{0.36} = \sqrt{\frac{36}{100}} = \frac{6}{10} = 0.6$
   c) $\sqrt{\frac{21}{2}} = \sqrt{10.5}$ and $\sqrt{10.5}$ is between $\sqrt{9} = 3$ and $\sqrt{16} = 4$, but closer to 3. Try 3.2: $3.2^2 = 10.24$, which is close.
   So, $\sqrt{\frac{21}{2}} \doteq 3.2$
   d) $\sqrt{\frac{11}{52}} \doteq \sqrt{\frac{13}{52}} = \sqrt{\frac{1}{4}}$, which is $\frac{1}{2}$.
   So, $\sqrt{\frac{11}{52}} \doteq 0.5$
4. I could use guess and test. I could use the benchmarks $\sqrt{49} = 7$ and $\sqrt{64} = 8$. Since 58.6 is a little closer to 64, try 7.7.
   $7.7^2 = 59.29$, which is close. So, $\sqrt{58.6} \doteq 7.7$
5. **a)** 3.8 **b)** 1.4
   c) 0.3 **d)** 0.8
6. **a)** 17 cm **b)** 7.1 m