Name Answers Date

Math 8: Chapter 7 Test Review

Find the square root(s).

1. $-\sqrt{400} =$ -20

2. $\sqrt{2.25} =$ 1.5

3. $-\sqrt{\frac{36}{16}} =$ $\frac{-6}{4} = -\frac{3}{2}$

4. $\pm\sqrt{\frac{98}{32}} =$ $\pm\sqrt{\frac{49}{16}} = \pm\frac{7}{4}$ simplify

Evaluate the expression.

5. $3\sqrt{81} - \left(\sqrt{40}\right)^2$

$= 3(9) - 40$
$= 27 - 40$
$= -13$

$= -13$

6. $4 - 2\sqrt{\frac{289}{4}}$

$= 4 - 2\left(\frac{17}{2}\right)$
$= 4 - 17$
$= -13$

$= -13$

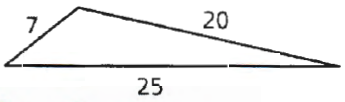
7. $-2\left(\sqrt{64} - 3\right)$

$= -2(8-3)$
$= -2(5) = -10$

$= -10$

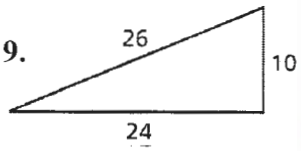
Prove whether the triangle with the given side lengths is a right triangle.

8.



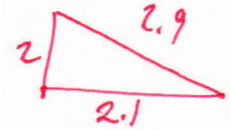
$a^2 + b^2 = c^2$
$7^2 + 20^2 = 25^2$
$49 + 400 = 625$
$449 \neq 625$
No.

9.



$a^2 + b^2 = c^2$
$10^2 + 24^2 = 26^2$
$100 + 576 = 676$
$676 = 676$
Yes.

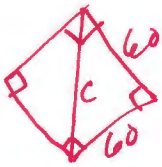
10. The side of the clip on a clip board appears to be a right triangle. The leg lengths are 2 millimeters and 2.1 millimeters and the hypotenuse is 2.9 millimeters. Is the side of the clip a right triangle?



$a^2 + b^2 = c^2$
$2^2 + (2.1)^2 = (2.9)^2$
$4 + 4.41 = 8.41$
$8.41 = 8.41$

Yes.

11. On the Junior League baseball field, you run 60 feet to first base and then 60 feet to second base. You are out at second base and then run directly along the diagonal to home plate. Find the total distance that you ran. Round your answer to the nearest tenth. *(Hint: Draw a picture to help you solve).*



$a^2 + b^2 = c^2$
$60^2 + 60^2 = c^2$
$3600 + 3600 = c^2$
$7200 = c^2$
$c \approx 84.85281...$ ≈ 84.9 ft

Tell whether a triangle with the given side lengths is a right triangle.

12. 8, $\sqrt{54}$, 11 (a, b, c)

$a^2 + b^2 = c^2$
$8^2 + (\sqrt{54})^2 = 11^2$
$64 + 54 = 121$
No. $118 \neq 121$

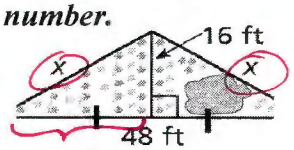
13. $\sqrt{39}$, 8, 5 (a, c, b)

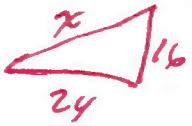
$a^2 + b^2 = c^2$
$(\sqrt{39})^2 + 5^2 = 8^2$
$39 + 25 = 64$
$64 = 64$
Yes

14. 11 in, 60 in, 61 in

$a^2 + b^2 = c^2$
$11^2 + 60^2 = 61^2$
$121 + 3600 = 3721$
$3721 = 3721$
Yes.

15. You are creating a flower garden in the triangular shape shown. You purchase edging to go around the flower garden. The edging costs \$1.50 per foot. What is the cost of the edging? ***Round your lengths to the nearest whole number.***





$a^2 + b^2 = c^2$
$24^2 + 16^2 = x^2$
$576 + 256 = x^2$
$832 = x^2$
$x \approx 28.84...$
$x \approx 29$

24
$29 + 29 = 58$ ft
$58 \times 1.50 = \$87.00$

Tell whether the rational number is a reasonable approximation of the square root.

16. $\frac{277}{160}$, $\sqrt{3}$

1.73125 ↙ ↘ 1.73205...
Yes

17. $\frac{590}{160}$, $\sqrt{17}$

3.6875 ↙ ↘ 4.1231....
No

Classify the real number. Choose all that apply from the given list below.
(whole, natural, integer, rational, irrational)

18. $-\sqrt{14}$ irrational

19. $1.\overline{3}$ rational

20. 2.375 rational

21. $\sqrt{100}$ natural, whole, integer, rational

Estimate the square root to the nearest (a) integer and (b) tenth.

22. $\sqrt{33}$

$\sqrt{25}$ 5.7 $\sqrt{36}$

5 $\sqrt{33}$ 6

integer : 6 *10th:* 5.7

23. $\sqrt{630}$

$\sqrt{630}$

$\sqrt{625}$ $\sqrt{676}$

25 25.2 26

integer : 25 *10th:* 25.2

24. $-\sqrt{8}$

$\sqrt{4}$ $\sqrt{8}$ $\sqrt{9}$

2 2.8 3

integer : 3 *10th:* 2.8

25. $\sqrt{\frac{30}{2}} = \sqrt{15}$

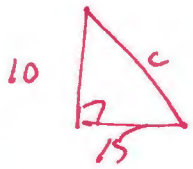
$\sqrt{9}$ $\sqrt{15}$ $\sqrt{16}$

3 3.9 4

integer : 4 *10th:* 3.9

Find the missing value using the Pythagorean Theorem.

26. A swimming pool is in the shape of a right triangle. One leg has a length of 10 feet and one leg has a length of 15 feet. Find the length of the hypotenuse. *(Estimate the length to the nearest integer if necessary).*



$a^2 + b^2 = c^2$

$10^2 + 15^2 = c^2$

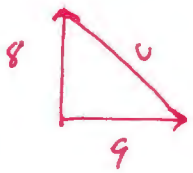
$100 + 225 = c^2$

$325 = c^2$

$\sqrt{325} = c$

$c \approx 18$ ft

27. You and a friend start off standing in the exact same point. Your friend walks a straight line 8 feet North and you walk a straight line 9 feet East. What is the approximate measure of the distance between you if you were to measure the direct route?



$a^2 + b^2 = c^2$

$8^2 + 9^2 = c^2$

$64 + 81 = c^2$

$145 = c^2$

$\sqrt{145} = c$

$\sqrt{144}$ $\sqrt{145}$ $\sqrt{169}$

12 12.1 13

≈ 12.1 ft

28. Find the length of the missing leg of a right triangle.

a. $a = 5$ cm, $b =$ ____, $c = 13$ cm.

$a^2 + b^2 = c^2$

$5^2 + b^2 = 13^2$

$25 + b^2 = 169$

$b^2 = 144$

$b = 12$ cm

b. $a =$ ____, $b = \sqrt{29}$ ft, $c = 15$ ft.

$a^2 + b^2 = c^2$

$a^2 + (\sqrt{29})^2 = 15^2$

$a^2 + 29 = 225$

$a^2 = 196$

$a = 14$ ft