pg. 292-293 #5, 6, 9-11, 14, 15, 18, 19, 21, 22, 25, 26,31, 34

5. $s = 1.3$ km

6. $r = 8$ in.

9. 2 and -2

10. 12 and -12

11. 25

14. $-\frac{3}{10}$

15. 2.2 and -2.2

18. -1.5

19. The positive and negative square roots should have been given.

$\pm\sqrt{\frac{1}{4}} = \frac{1}{2}$ and $-\frac{1}{2}$

21. -116

22. 7

25. 25

26. -2

31. =

34. yes; *Sample answer:* Consider the perfect squares, a^2 and b^2. Their product can be written as $a^2b^2 = a \cdot a \cdot b \cdot b = (a \cdot b) \cdot (a \cdot b) = (a \cdot b)^2$.

pg. 298-299 #7-17 odd, 20-22, 27, 31

7. -5

9. 12

11. $\frac{7}{4}$

13. $3\frac{5}{8}$

15. $\frac{7}{12}$

17. 74

20. 135

21. 30 cm

22. **a.** 40 in.

b. 9600 in.^{2}

27. $-1, 0, 1$

31. $x = 3$

pg. 304-305 #3-7 odd, 10, 13, 14, 16, 19-22

3. 29 km

5. 9 in.

7. 24 cm

10. 6.5 ft

13. See *Taking Math Deeper.*

14. yes; The distance from the player's mouth to the referee's ear is 25 feet.

16. 7

19. 6 and −6

20. −11

21. 13

22. −15

pg. 313 – 314 #9-15 odd, 20-24, 35, 37

9. whole, integer, rational

11. irrational

13. rational

15. irrational

20. **a.** 7

b. 6.8

21. **a.** 26

b. 26.2

22. **a.** -8

b. -7.8

23. **a.** -10

b. -10.2

24. **a.** 3

b. 2.6

35. 8.1 ft

37. 8.5 ft

Pg. 322-323 #5-15 odd, 18, 22-25

5. yes

7. no

9. yes

11. $2\sqrt{13}$

13. $\sqrt{29}$

15. $\sqrt{85}$

18. yes; The side lengths satisfy the converse of the Pythagorean Theorem.

22. yes; Use the distance formula to find the lengths of the three sides. Use the converse of the Pythagorean Theorem to show they form a right triangle.

23. no; The measures of the side lengths are $\sqrt{5000}$, $\sqrt{3700}$, and $\sqrt{8500}$ and $(\sqrt{5000})^2 + (\sqrt{3700})^2 \neq (\sqrt{8500})^2$.

24. yes; $\sqrt{58}$; Because you square the differences $(x_2 - x_1)$ and $(y_2 - y_1)$, it does not matter if the differences are positive or negative. The squares of opposite numbers are equivalent.

25. See *Taking Math Deeper*.

Name Key Date

CHAPTER 7 TEST Review- Real Numbers

Section 7.1- Finding Square Roots

Find the TWO square roots of the number.

1. 16

4 and −4

2. 100

10 and −10

3. 196

14 and −14

Find the square root(s).

4. $\sqrt{169}$

13

5. $\sqrt{\frac{4}{225}} = \frac{2}{15}$

6. $-\sqrt{12.25} = -3.5$

Evaluate the expression. (Carefully showing your steps)

7. $2\sqrt{36} + 9$

$2 \cdot 6 + 9$

$12 + 9$

21

8. $8 - 11\sqrt{\frac{25}{121}}$

$8 - 11 \cdot \frac{5}{11}$

$8 - 5$

3

9. $3\left(\sqrt{\frac{125}{5}} - 8\right)$

$3(\sqrt{25} - 8)$

$3(5 - 8)$

$3 \cdot (-3) = -9$

10. A trampoline has an area of 49π square feet. What is the diameter of the trampoline?

Formula for the area of a circle is πr^2

$\frac{\pi r^2}{\pi} = \frac{49\pi}{\pi}$ ÷ by π

$\sqrt{r^2} = \sqrt{49}$

$r = 7$ ft

The diameter is 14 ft.

Section 7.2 – Finding Cube Roots

Find the cube root.

11. $\sqrt[3]{27} = 3$

12. $\sqrt[3]{-64} = -4$

13. $\sqrt[3]{-\frac{125}{216}} = -\frac{5}{6}$

Evaluate the expression.

14. $10 - \left(\sqrt[3]{12}\right)^3$

$10 - 12$

−2

15. $2\sqrt[3]{512} + 10$

$2 \cdot 8 + 10$

$16 + 10$

26

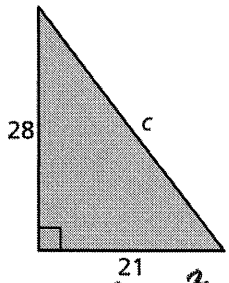
16. The volume of a cube is 1000 cubic inches. What is the edge length of the cube?

Volume is cubed. $\sqrt[3]{1000} =$ 10 inches

Section 7.3- The Pythagorean Theorem

Find the missing length of the triangle.

17.



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

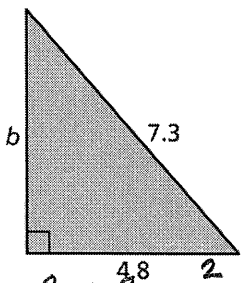
$21^2+28^2=c^2$

$441+784=c^2$

$\sqrt{1225}=c$

$35=c$

18.



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

$4.8^2+b^2=7.3^2$

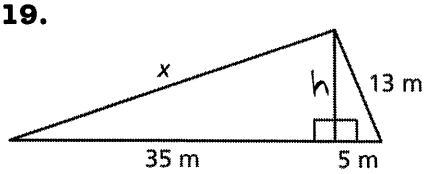
$23.04+b^2=53.29$

$-23.04 \quad -23.04$

$\sqrt{b^2}=\sqrt{30.25}$

$b=5.5$

19.



① Solve for h:

$5^2+h^2=13^2$

$h^2=13^2-5^2$

$h^2=169-25$

$h^2=144$

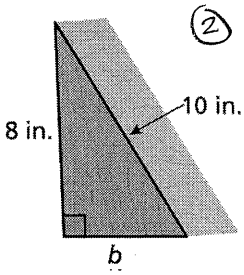
$h=12$

② $12^2+35^2=x^2$

$144+1225=x^2$

$37=x$

20. In wood shop, you make a bookend that is in the shape of a right triangle. What is the base b of the bookend?



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

$64+b^2=100$

$b^2=36$

$b=6$

Section 7.4- Approximating Square Roots

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

21. $\sqrt{8}$

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

$2 \quad \quad 3$

a. 3

b. 2.8

$\frac{8-4}{9-4} \quad \frac{4}{5}$

22. $\sqrt{60}$

$\sqrt{49} \quad \sqrt{60} \quad \sqrt{64}$

$7 \quad \quad 8$

a. 8

b. 7.7 or 7.8

$\frac{60-49}{64-49} \quad \frac{11}{15}$

$\frac{12}{15}$ is 0.8

23. $-\sqrt{\frac{172}{25}}$

$172 \div 25 = 6.88$

a. -3

b. -2.6

Which number is greater? Explain.

24. $\sqrt{88}$, 12

12 is greater

$\sqrt{88}$ is ≈ 9.3

25. $-\sqrt{18}$, -6

$-\sqrt{18}$ is greater.

It is $\approx$ 4.2

26. 14.5, $\sqrt{220}$

$\sqrt{220}$ is greater

It is aprox. 14.8

27. The velocity in meters per second of a ball that is dropped from a window at a height of 10.5 meters is represented by the equation $v = \sqrt{2(9.8)(10.5)}$. Estimate the velocity of the ball. Round your answer to the nearest tenth.

14.3 m/sec

$v = \sqrt{205.8}$

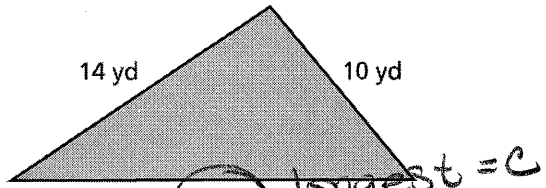
14^2		15^2
196	205.8	225

$\approx \frac{10}{29} \approx \frac{1}{3} \approx 14.3$

Section 7.5- Using the Pythagorean Theorem

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

28.



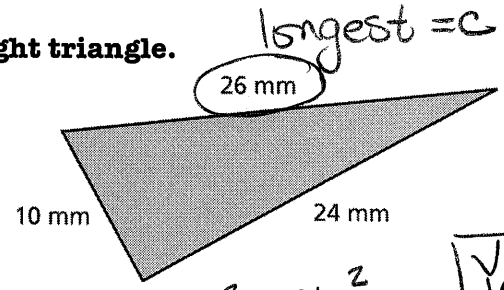
longest = c

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

$14^2+10^2 \neq 18^2$

Not a right triangle

29.



longest = c

$10^2+24^2=26^2$

$100+576=676$ ✓

Yes

30. 4 m, 4.2 m, 5.8 m

longest is c

$4^2+4.2^2=5.8^2$

yes

31. 31 in., 35 in., 16 in.

c

$31^2+16^2=35^2$

no

Find the distance between the two points.

32. (2, 1), (−3, 6)

$\sqrt{(-3-2)^2+(6-1)^2}$

$\sqrt{(-5)^2+(5)^2}$

$\sqrt{50}$

33. (−6, −4), (2, 2)

$\sqrt{(2--6)^2+(2--4)^2}$

$(2+6)^2+(2+4)^2$

$\sqrt{8^2+6^2}$

10

34. (−9, 3), (−5, −8)

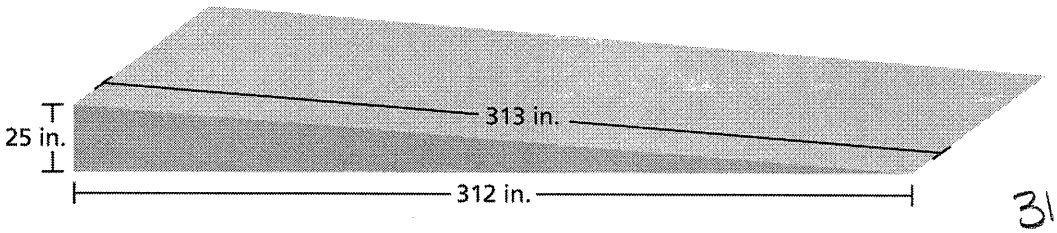
$\sqrt{(-5--9)^2+(-8-3)^2}$

$\sqrt{(-5+9)^2+(-11)^2}$

$\sqrt{4^2+(-11)^2}$

$\sqrt{137}$

35. The cross-section of a wheelchair ramp is shown. Does the ramp form a right triangle?



yes

$312^2+25^2=313^2$