chapter 7 review

Formulas you must know:

Distance Formula $\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$

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

Find the square root(s).

1. $-\sqrt{169}$

-13

2. $\pm\sqrt{10{,}000}$

± 100

3. $\sqrt{\frac{16}{81}}$

$\frac{4}{9}$

Find the cube root.

4. $\sqrt[3]{1{,}000{,}000}$

100

5. $\sqrt[3]{\frac{27}{729}}$

$\frac{3}{9} = \frac{1}{3}$

Evaluate the expression.

6. $3 - \sqrt{0.0225}$

$3 - 0.15$

2.85

7. $\sqrt{0.25} + \left(\sqrt{0.64}\right)^2$

$0.5 + 0.64$

1.14

8. $6\sqrt[3]{1331} - 42$

$6(11) - 42$

$66 - 42$

24

9. $3\sqrt[3]{-\frac{1}{64}} + 2\frac{1}{2}$

$3\left(\frac{1}{4}\right) + 2\frac{1}{2}$

$\frac{3}{4} + 2\frac{1}{2}$

$3\frac{1}{4}$

Cube all sides the same

10. A cube-shaped aquarium has a volume of 1728 cubic inches. What is the width of the aquarium?

$V = Bh$

$\sqrt[3]{1728} = Bh$

$12 = L$

$12 = w$

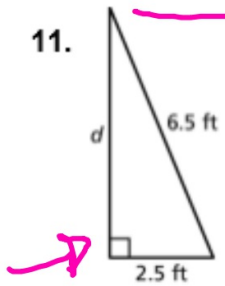
$12 = h$

$12 \times 12 \times 12 = 1728$

(Both Right triangles

Find the missing length of the triangle.

11.



$2.5^2 + b^2 = 6.5^2$

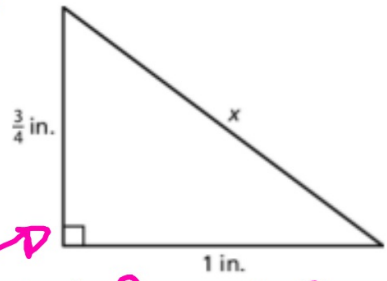
$6.25 + b^2 = 42.25$

-6.25

$b^2 = \sqrt{36}$

$b = 6$

12.



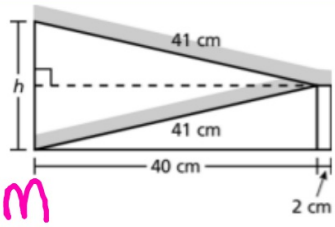
$\left(\frac{3}{4}\right)^2 + (1)^2 = x^2$

$\frac{9}{16} + 1 = x^2$

$\sqrt{1\frac{9}{16}} = x^2$

$\sqrt{1\frac{9}{16}} = x^2$

13. A toy marble run has ramps and turnaround points. Each ramp is 41 centimeters long. The turnaround is 2 centimeters wide and flat, and the entire toy is 42 centimeters wide, as shown.



a. How tall is the toy? 18cm

b. You add one more ramp to the toy. How tall is it now? 27cm

Classify the real number.

14. $1\frac{5}{7}$ **15.** $-\sqrt{3}$ **16.** $\sqrt{\frac{1}{8}}$

Rational (can be written as a fraction

Irrational

Irrational

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

17. $-\sqrt{46}$

$-7, -6.8$

18. $\sqrt{190}$ $14, 13.8$

19. The time in seconds for an object to fall d meters is modeled by $\sqrt{\frac{d}{5}}$.

How long does it take the object to fall 200 meters? Round to the nearest tenth of a second. 6.3 sec

$$\sqrt{\frac{200}{5}} = \sqrt{40} = 6.3 \text{ sec}$$

Which number is greater? Explain.

20. $\sqrt{4.4}$, 2.2

21. $-\sqrt{0.8}$, -0.8

2.2

-0.8

Write the decimal as a fraction or a mixed number.

22. $0.\overline{37}$

23. $7.\overline{18}$

$\frac{37}{99}$

$7\frac{2}{11}$

Find the distance between the two points.

24. $(-10, 9), (10, -12)$

29

$\sqrt{(-10-10)^2+(9--12)^2}$

$(-20)^2+(21)^2$

$400+441$

$\sqrt{841}$

29

25. $(10, -4), (-14, 6)$

26

$\sqrt{(10--14)^2+(-4-6)^2}$

$(24)^2+(-10)^2$

$576+100$

$\sqrt{676}$

26

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

26. 8 ft, 15 ft, 17 ft (a b c)

$8^2+15^2=17^2$

$64+225=289$

$289=289$

yes

27. 14 km, 48 km, 50 km (a b c)

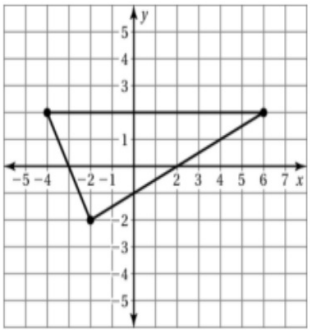
$14^2+48^2=50^2$

$196+2304=2500$

$2500=2500$

yes

28. Find the side lengths of the triangle in the figure. Is it a right triangle? Explain your reasoning.



The longest side is 10 units long. Using the Pythagorean Theorem, the shortest side is $\sqrt{4^2 + 2^2} = \sqrt{20}$ units long and the third side is $\sqrt{4^2 + 8^2} = \sqrt{80}$ units long. Because $20 + 80 = 100$, the triangle is a right triangle.