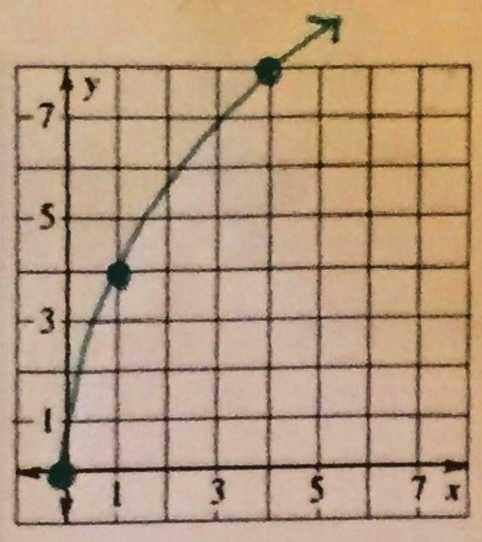
Algebra I Chapter 11 Review Name_____

Graph the function. Find at least 3 points (start with the smallest possible x).

1. $y = 4\sqrt{x}$

ANCHOR POINT: (0,0)

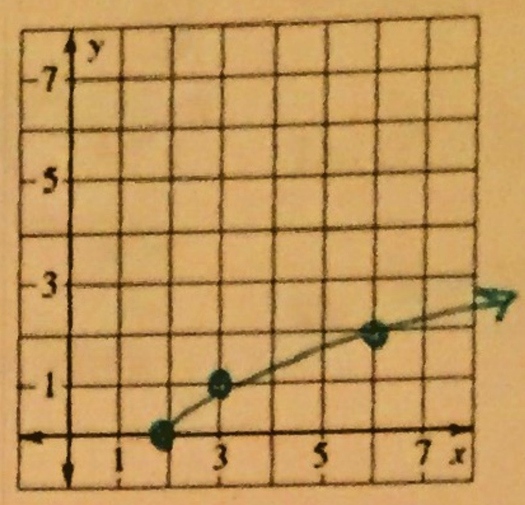
x	y
1	4
4	8



2. $y = \sqrt{x-2}$

ANCHOR POINT: (2,0)

x	y
3	1
6	2



Simplify the expression. Show work!

3. $\sqrt{48}$ → $\sqrt{16}\ \sqrt{3}$

3. $4\sqrt{3}$

4. $\sqrt{\frac{25}{49}} = \frac{\sqrt{25}}{\sqrt{49}}$

4. $\frac{5}{7}$

5. $\frac{3}{\sqrt{11}} \cdot \frac{\sqrt{11}}{\sqrt{11}}$

5. $\frac{3\sqrt{11}}{11}$

6. $\sqrt{64x^5y^8}$ → $\sqrt{64}\ \sqrt{x^5}\ \sqrt{y^8}$

6. $8x^2y^4\sqrt{x}$

7. $5\sqrt{3} - 11\sqrt{3}$

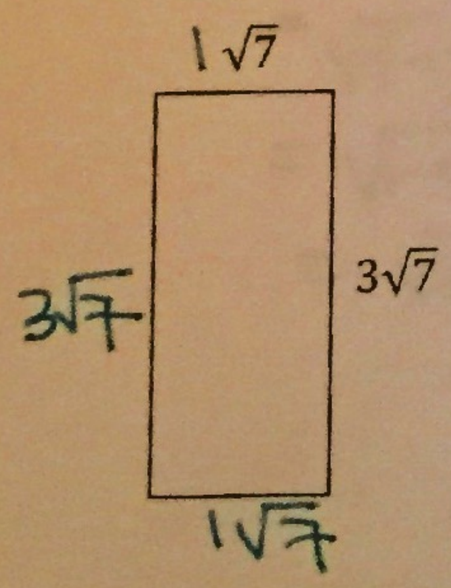
7. $-6\sqrt{3}$

8. $\sqrt{5}(7 - \sqrt{5})$

8. $7\sqrt{5} - 5$

Use the figure below (no decimals in answers!).

9. Find the perimeter.



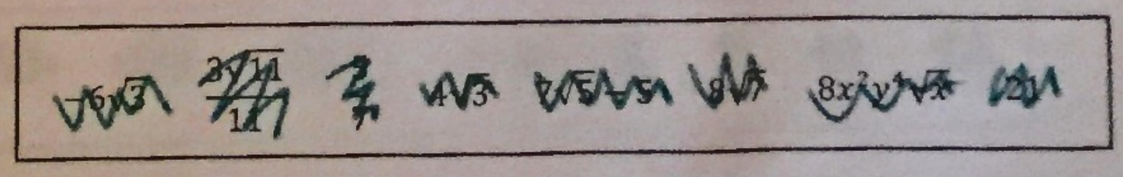
9. $8\sqrt{7}$

10. Find the area.

$\sqrt{7} \cdot 3\sqrt{7}$

$3 \cdot 7 = 21$

10. 21



Solve the equation. Check for extraneous solutions.

11. $\sqrt{5x} - 7 = -2$

$(\sqrt{5x})^2 = (5)^2$

$\frac{5x}{5} = \frac{25}{5}$

$x = 5$

12. $(\sqrt{5x-12})^2 = (\sqrt{2x+9})^2$

$5x - 12 = 2x + 9$

$-2x + 12 \quad -2x + 12$

$\frac{3x}{3} = \frac{21}{3}$

$x = 7$

13. $3\sqrt{x+2} + 17 = 32$

$-17 \quad -17$

$\frac{3\sqrt{x+2}}{3} = \frac{15}{3}$

$(\sqrt{x+2})^2 = (5)^2$

$x + 2 = 25$

$-2 \quad -2$

$x = 23$

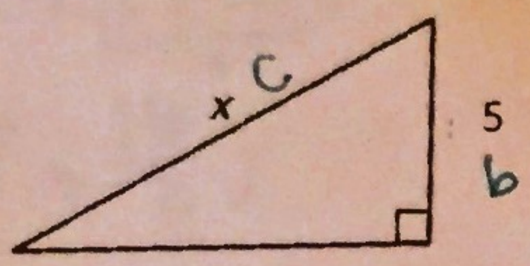
11. $x = 5$

12. $x = 7$

13. $x = 23$

Find the unknown length(s). Pythagorean Theorem: $a^2 + b^2 = c^2$

14.

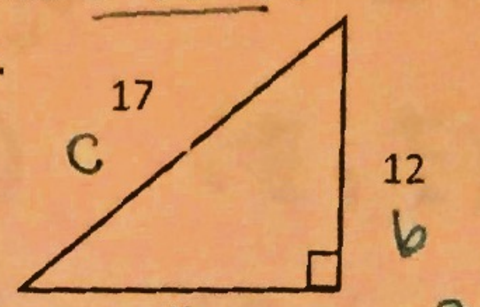


$12^2 + 5^2 = c^2$

$144 + 25 = c^2$

$\sqrt{169} = \sqrt{c^2}$

15.



$12^2 + a^2 = 17^2$

$a^2 + 144 = 289$

$-144 \quad -144$

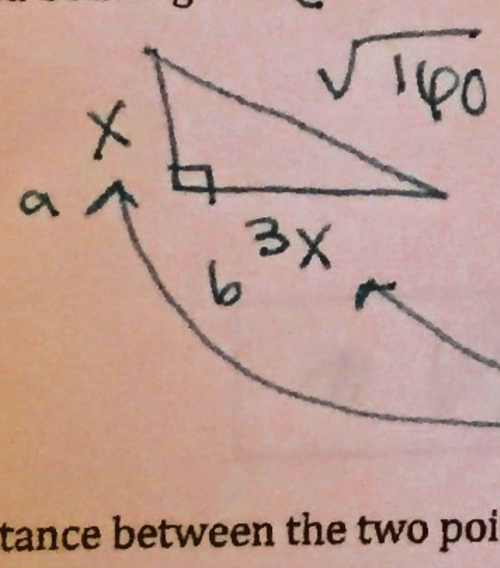
$\sqrt{a^2} = \sqrt{145}$

$a = \sqrt{145}$

14. $c = 13$

15. $a = \sqrt{145}$

16. A right triangle has one leg that is three times as long as the other leg. The hypotenuse is $\sqrt{160}$ inches. Find both legs.



$x^2 + (3x)^2 = (\sqrt{160})^2$

$x^2 + 9x^2 = 160$

$\frac{10x^2}{10} = \frac{160}{10}$

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

$x = 4$

16. $a = 4$

$b = 3 \cdot 4 = 12$

Find the distance between the two points. $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

17. (2,7), (5,6)

$x_1\ y_1 \quad x_2\ y_2$

$= \sqrt{(5-2)^2 + (6-7)^2}$

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

$= \sqrt{9+1}$

$= \sqrt{10}$

18. (−5,3), (1,2)

$x_1\ y_1 \quad x_2\ y_2$

$= \sqrt{(2-3)^2 + (1--5)^2}$

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

$= \sqrt{1+36}$

$= \sqrt{37}$

17. $d = \sqrt{10}$

18. $d = \sqrt{37}$

~~$\sqrt{10}$~~	~~$\sqrt{37}$~~	~~$\sqrt{145}$~~	~~4.12~~	~~5~~	~~7~~	~~12~~	~~23~~

The distance d between two points is given. Find the value of b.

19. $(-3, 2)$, $(7, b)$; $d = 10$

$x_1\ y_1\ x_2\ y_2$

$10 = \sqrt{(7 - -3)^2 + (b-2)^2}$

$10 = \sqrt{(10)^2 + (b-2)^2}$

$10 = \sqrt{100 + b^2 - 4b + 4}$

$(10)^2 = (\sqrt{b^2 - 4b + 104})^2$

$(b-2)(b-2)$

$b^2 - 4b + 4$

$100 = b^2 - 4b + 104$

$-104 \quad -104$

$-4 = b^2 - 4b$

$+4 \quad +4$

$0 = b^2 - 4b + 4$

$0 = (b-2)(b-2)$

19. $b = 2$

$b - 2 = 0 \quad b - 2 = 0$

$b = 2 \quad b = 2$

Find the midpoint of the line segment with the given endpoints. Midpoint formula: $M\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$

20. $(-7, 2)$, $(-10, 14)$

$\left(\frac{-17}{2}, \frac{16}{2}\right)$

$= \left(\frac{-17}{2}, 8\right)$

21. $(-9, -5)$, $(7, -14)$

$\left(\frac{-2}{2}, \frac{-19}{2}\right)$

$= \left(-1, \frac{-19}{2}\right)$

22. $(-11, 7)$, $(8, -3)$

$\left(\frac{-3}{2}, \frac{4}{2}\right)$

$= \left(\frac{-3}{2}, 2\right)$

20. $\left(\frac{-17}{2}, 8\right)$

21. $\left(-1, \frac{-19}{2}\right)$

22. $\left(\frac{-3}{2}, 2\right)$

$\left(\frac{-17}{2}, 8\right)$ $\left(-\frac{3}{2}, 2\right)$ $\left(-1, -\frac{19}{2}\right)$