

Review for Past Units

Kickoff-

1) Find the missing side.
Round your answer to the nearest tenth.

2) Find the missing angle.
Round your answer to the nearest degree.

$\sin^{-1} = \frac{13}{23}$
 $= 34^\circ$

$\sin 68^\circ = \frac{15}{x}$
 $x = 16.2$

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Homework Days 3-6

- | | | |
|---------|------------|---|
| (1) 23 | (6) 33 | (11) 30 |
| (2) 34 | (7) 41 | (12) 15 |
| (3) 29 | (8) 45 | (13) 24032 |
| (4) 37 | (9) 72 | (14) 38 |
| (5) 50 | (10) 39 | (15) 14.2 |
| (16) 69 | (17) 136.7 | (18) a) $x = 3$
b) $\theta = 53^\circ$ |

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Completing the Square

1) $x^2 - 4x - 12 = 0$

$x^2 - 4x + 4 = 12 + 4$
 $(x-2)^2 = 16$
 $x-2 = \pm 4$
 $x = 6 \quad x = -2$

2) $x^2 + 6x - 59 = 0$

$x^2 + 6x + 9 = 59 + 9$
 $(x+3)^2 = 68$
 $x+3 = \pm \sqrt{68}$
 $x = -3 \pm \sqrt{68}$

3) $x^2 + 14x - 51 = 0$

$x^2 + 14x + 49 = 51 + 49$
 $(x+7)^2 = 100$
 $x+7 = \pm 10$
 $x = -7 \pm 10$
 $x = 3 \quad x = -17$

4) $x^2 - 12x + 23 = 0$

$x^2 - 12x + 36 = 23 + 36$
 $(x-6)^2 = 59$
 $x-6 = \pm \sqrt{59}$
 $x = 6 \pm \sqrt{59}$

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Adding and Subtracting Radicals

Perfect Squares:
4, 9, 16, 25, 36, 49, 64, 81, 100

Simplify:

5) $\sqrt{72}$
 $\sqrt{36} \cdot \sqrt{2}$
 $6\sqrt{2}$

6) $\sqrt{175}$
 $\sqrt{25} \cdot \sqrt{7}$
 $5\sqrt{7}$

7) $-2\sqrt{3} - 3\sqrt{27}$
 $-2\sqrt{3} - 3\cdot 3\sqrt{3}$
 $-2\sqrt{3} - 9\sqrt{3}$
 $-11\sqrt{3}$

8) $2\sqrt{6} - 2\sqrt{24}$
 $2\sqrt{6} - 2\cdot 2\sqrt{6}$
 $2\sqrt{6} - 4\sqrt{6}$
 $-2\sqrt{6}$

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7) $-3\sqrt{18} + 3\sqrt{8} - \sqrt{24}$

$-3\sqrt{9\cdot 2} + 3\sqrt{4\cdot 2} - \sqrt{4\cdot 6}$
 $-9\sqrt{2} + 6\sqrt{2} - 2\sqrt{6}$
 $-3\sqrt{2} - 2\sqrt{6}$

8) $3\sqrt{18} + 3\sqrt{12} + 2\sqrt{27}$

$3\sqrt{9\cdot 2} + 3\sqrt{4\cdot 3} + 2\sqrt{9\cdot 3}$
 $9\sqrt{2} + 6\sqrt{3} + 6\sqrt{3}$
 $9\sqrt{2} + 12\sqrt{3}$

9) $-2\sqrt{20} + 2\sqrt{18} - 2\sqrt{5}$

$-2\sqrt{4\cdot 5} + 2\sqrt{9\cdot 2} - 2\sqrt{5}$
 $-4\sqrt{5} + 6\sqrt{2} - 2\sqrt{5}$
 $6\sqrt{2} - 6\sqrt{5}$

10) $-\sqrt{45} + 2\sqrt{5} - \sqrt{20} - 2\sqrt{6}$

$-\sqrt{9\cdot 5} + 2\sqrt{5} - \sqrt{4\cdot 5} - 2\sqrt{6}$
 $-3\sqrt{5} + 2\sqrt{5} - 2\sqrt{5} - 2\sqrt{6}$
 $-3\sqrt{5} - 2\sqrt{6}$

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Solving Radical Equations

11) $\sqrt{2x-1} - 5 = 2$

$\sqrt{2x-1} = 7$
 $2x-1 = 49$
 $2x = 50$
 $x = 25$

12) $3\sqrt{y-4} = 9$

$\sqrt{y-4} = 3$
 $y-4 = 9$
 $y = 13$

13) $\sqrt{1+y} = 3$

$1+y = 9$
 $y = 8$

14) $8 + \sqrt{2x-1} = 15$

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15) $-10\sqrt{v-10} = -60$

16) $-8 + \sqrt{5a-5} = -3$

17) $\sqrt{n-9} = 1$

18) $2 = \sqrt{4b}$

Inverse Functions

19) Find $f^{-1}(x)$ if $f(x) = 2x + 3$

$y = 2x + 3$

$x = 2y + 3$

$\underline{-3} \quad \underline{-3}$

$\frac{x-3}{2} = y$

$y = \frac{x-3}{2} = f^{-1}(x)$

20) Find $f^{-1}(x)$ if $f(x) = 5x - 11$

21) Find $f^{-1}(x)$ if $f(x) = 6x + 7$

22) Find $f^{-1}(x)$ if $f(x) = 8x - 1$

$\boxed{\text{FLIP } x \text{ & } y}$

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23) Find $f^{-1}(x)$ if $f(x) = -2x - 7$

$$\begin{array}{r} \downarrow \\ y = -2x - 7 \\ x = -2y - 7 \\ \hline +7 \quad +7 \\ \hline \frac{x+7}{-2} = \frac{-2y}{-2} \end{array}$$

25) Find $f^{-1}(x)$ if $f(x) = -3x + 1$

24) Find $f^{-1}(x)$ if $f(x) = -x + 5$

$$\begin{array}{r} x = -y + 5 \\ -5 \quad -5 \\ \hline x - 5 = -y \\ \hline -1 \quad -1 \\ \hline \frac{x-5}{-1} = \frac{-y}{-1} \end{array}$$

26) Find $f^{-1}(x)$ if $f(x) = 4x - 11$

 \therefore

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