WRH3 Solutions

1.6: 2, 9, 24, 33, 38, 53
1.7: 1, 4, 13, 32, 50, 53
1.8: 1, 4, 10, 14

1.6

2. $5(2x-1) = 3(1-x)+5x$

$10x - 5 = 3 - 3x + 5x = 2x + 3$

$8x = 8$

$\boxed{x = 1}$

9. $\frac{4z-3}{2} + \frac{3}{8} = \frac{8z+3}{4} \quad | \cdot 8$

$4(4z-3) + 3 = 2(8z+3)$

$16z - 12 + 3 = 16z + 6$

$-9 = 6$

$\boxed{\emptyset}$

24. $0.73z + 0.34 = 9.1$

$0.73z = 8.76$

$\boxed{z = 12}$

33. $|5x-3| = 7$

$$|5x-3| = \begin{cases} 5x-3, & 5x-3 \geq 0 \\ -(5x-3), & 5x-3 < 0 \end{cases}$$

$5x-3=7$ or $5x-3=-7$

$5x=10$ $\quad$ $5x=-4$

$\boxed{x=2}$ $\quad$ $\boxed{x=-\frac{4}{5}}$

38. $|x+3| = |x-7|$

① $x+3 = x-7$ or ② $x+3 = -(x-7)$

or ③ $-(x+3) = x-7$ or ④ $-(x+3) = -(x-7)$

① $x+3 = x-7$

$\emptyset$

② $x+3 = -x+7$

$2x = 4$

$x = 2$

③ $-x-3 = x-7$

$-2x = -4$

$x = 2$

④ $-x-3 = -x+7$

$\emptyset$

$\boxed{\text{Answer: } x = 2}$

53. $A = 2\ell w + 2wh + 2h\ell$

$A = 2\ell w + h(2w+2\ell)$

$$A - 2lw = h(2w + 2l)$$

$$h = \frac{A - 2lw}{2w + 2l}$$

1.7

1. $7y - 33.6 < -8.6 + 2y$

$5y < 25$

$y < 5$

Answer: $-9, 3.14, -2.83, 1, -3, 4$

4. $-4 < -2(z-2) \leq 2$

$-4 < -2z + 4 \leq 2$

$-8 < -2z \leq -2$

$1 \leq z < 4$

$z \in [1, 4)$

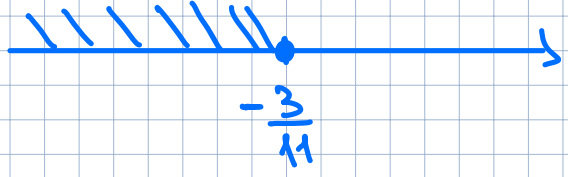
Answer: $1, 3.14,$

13. $4w + 7 \leq -7w + 4$

$11w \leq -3$

$w \leq -\frac{3}{11}$

$w \in \left(-\infty, -\frac{3}{11}\right]$



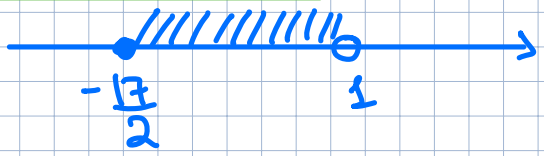
32. $-10 < -2(4+y) \leq 9$

$-10 < -8 - 2y \leq 9$

$-2 < -2y \leq 17$

$-\frac{17}{2} \leq y < 1$

$y \in \left[-\frac{17}{2}, 1\right)$



50. $|2x-1| < x+4$

$-x-4 < 2x-1 < x+4$

$-x-3 < 2x < x+5$

1) $2x < x+5$

$x < 5$

2) $2x > -x-3$

$3x > -3$

$x > -1$

$x \in (-1, 5)$

53. $t < 2t - 3$ and $-3(t+4) > -57$

$t > 3$ and $-3t - 12 > -57$

$t > 3$ and $-3t > -45$

$t < 15$

$\boxed{t \in (3, 15)}$

1.8

1. $2x^2 - x = 3$

$2x^2 - x - 3 = 0$

$3x^2 - x - 3 - x^2 = 0$

$3(x^2 - 1) - x(x+1) = 0$

$3(x-1)(x+1) - x(x+1) = 0$

$(x+1)(3x - 3 - x) = 0$

$(x+1)(2x-3) = 0$

$\boxed{x = -1 \text{ or } x = \frac{3}{2}}$

4. $3x^2 + 33 = 2x^2 + 14x$

$x^2 - 14x + 33 = 0$

$x^2 - 11x + 33 - 3x = 0$

$x(x-11) - 3(x-11) = 0$

$(x-3)(x-11) = 0$

$\boxed{x = 3 \text{ or } x = 11}$

10. $(y-18)^2 - 1 = 0$

$(y-18)^2 = 1$

$y - 18 = \pm 1$

$y = 1 + 18 \text{ or } y = -1 + 18$

$\boxed{y = 19 \text{ or } y = 17}$

14. $x^2 + 8x + 7 = -8$

$x^2 + 8x + 7 + 16 - 16 + 8 = 0$

$(x^2 + 2 \cdot 4 \cdot x + 4^2) - 1 = 0$

$(x+4)^2 - 1 = 0$

$(x+4)^2 = 1 \Rightarrow \quad x + 4 = \pm 1$

$x = -3 \quad$ or $\quad x = -5$