

Practice Quiz #4

Solve each equation.

1) $|n - 10| = 9$

①

$n - 10 = 9$

$n = 19$

②

$n - 10 = -9$

$n = 1$

2) $|2n| = 4$

①

$2n = 4$

$n = 2$

②

$2n = -4$

$n = -2$

3) $|-9m - 8| = 53$

①

$-9m - 8 = 53$

$-9m = 61$

$m = -\frac{61}{9}$

②

$-9m - 8 = -53$

$-9m = -45$

$m = 5$

4) $|6k + 8| = 46$

①

$6k + 8 = 46$

$6k = 38$

$k = 6.\bar{3}$

②

$6k + 8 = -46$

$6k = -54$

$k = -9$

5) $|8 + 3p| - 6 = 5$

$|8 + 3p| = 11$

①

$8 + 3p = 11$

$3p = 3$

$p = 1$

②

$8 + 3p = -11$

$3p = -19$

$p = -6.\bar{3}$

6) $6|10 - 9n| = 60$

$|10 - 9n| = 10$

①

$10 - 9n = 10$

$-9n = 0$

$n = 0$

②

$10 - 9n = -10$

$-9n = -20$

$n = 2.\bar{2}$

7) $1 - 8|3 - 3v| = -71$

$-8|3 - 3v| = -72$

$|3 - 3v| = 9$

①

$3 - 3v = 9$

$-3v = 6$

$v = -2$

② $3 - 3v = -9$

$-3v = -12$

$v = 4$

8) $9|3 + n| - 3 = 51$

$9|3 + n| = 54$

$|3 + n| = 6$

①

$3 + n = 6$

$n = 3$

②

$3 + n = -6$

$n = -9$

Solve each inequality.

$$9) \left| \frac{x}{9} \right| > 4$$

$$\textcircled{1} \frac{x}{9} > 4$$

$$\boxed{x > 36}$$

$$\textcircled{2} \frac{x}{9} < -4$$

$$\boxed{x < -36}$$

$$11) |-8b - 4| \geq 52$$

$$\textcircled{1} -8b - 4 \geq 52$$

$$-8b \geq 56$$

$$\boxed{b \leq -7}$$

$$\textcircled{2} -8b - 4 \leq -52$$

$$-8b \leq -48$$

$$\boxed{b \geq 6}$$

$$13) \frac{|8b - 9|}{4} > 3$$

$$|8b - 9| > 12$$

$$\textcircled{1} 8b - 9 > 12$$

$$8b > 21$$

$$\boxed{b > 2.625}$$

$$\textcircled{2} 8b - 9 < -12$$

$$8b < -3$$

$$\boxed{b < -0.375}$$

$$15) -6|-9 + 6n| + 8 > -10$$

$$-6|-9 + 6n| > -18$$

$$|-9 + 6n| < 3$$

$$\textcircled{1} -9 + 6n < 3$$

$$6n < 12$$

$$\boxed{n < 2}$$

$$\textcircled{2} -9 + 6n > -3$$

$$6n > 6$$

$$\boxed{n > 1}$$

Simplify.

$$17) -8 + i - (-8 + 8i) - 6 - 8i$$

$$-8 + i + 8 - 8i - 6 - 8i$$

$$\boxed{-6 - 15i}$$

$$10) |n + 7| < 7$$

$$\textcircled{1} n + 7 < 7$$

$$\boxed{n < 0}$$

$$\textcircled{2} n + 7 > -7$$

$$\boxed{n > -14}$$

$$12) |3 - 9x| \leq 69$$

$$\textcircled{1} 3 - 9x \leq 69$$

$$-9x \leq 66$$

$$\boxed{x \geq -7.\bar{3}}$$

$$\textcircled{2} 3 - 9x \geq -69$$

$$-9x \geq -72$$

$$\boxed{x \leq 8}$$

$$14) |2 + 9p| + 1 < 26$$

$$|2 + 9p| < 25$$

$$\textcircled{1} 2 + 9p < 25$$

$$9p < 23$$

$$\boxed{p < 2.\bar{5}}$$

$$\textcircled{2} 2 + 9p > -25$$

$$9p > -27$$

$$\boxed{p > -3}$$

$$16) 2 - 4|-2 - 3x| < -78$$

$$-4|-2 - 3x| < -80$$

$$|-2 - 3x| > 20$$

$$\textcircled{1} -2 - 3x > 20$$

$$-3x > 22$$

$$\boxed{x < -7.\bar{3}}$$

$$\textcircled{2} -2 - 3x < -20$$

$$-3x < -18$$

$$\boxed{x > 6}$$

$$18) 1 - 7i + 6i - (-1 + 3i)$$

$$1 - 7i + 6i + 1 - 3i$$

$$\boxed{2 - 4i}$$

$$19) -2i \cdot -8i \cdot 4i$$

$$16i^2 \cdot 4i$$

$$-16 \cdot 4i$$

$$\boxed{-64i}$$

$$21) \frac{9}{-2i} \cdot \frac{i}{i}$$

$$= \frac{9i}{-2i^2}$$

$$= \boxed{\frac{9i}{2}}$$

$$23) \frac{-9+3i}{-7-3i} \cdot \frac{-7+3i}{-7+3i}$$

$$= \frac{63-27i-21i+9i^2}{49-21i+21i-9i^2}$$

$$= \frac{63-48i-9}{49+9} = \frac{54-48i}{58} = \boxed{\frac{27-24i}{29}}$$

$$25) \frac{8\sqrt{10}-\sqrt{6}}{\sqrt{7}} \cdot \frac{\sqrt{7}}{\sqrt{7}}$$

$$= \frac{8\sqrt{70}-\sqrt{42}}{\sqrt{49}}$$

$$= \boxed{\frac{8\sqrt{70}-\sqrt{42}}{7}}$$

$$20) (5-3i)^2$$

$$(5-3i)(5-3i)$$

$$25-15i-15i+9i^2 = -1$$

$$25-30i-9$$

$$\boxed{16-30i}$$

$$22) \frac{2-2i}{-4i} \cdot \frac{i}{i}$$

$$= \frac{2i-2i^2}{-4i^2} = \frac{2i+2}{4} = \boxed{\frac{i+1}{2}}$$

$$24) \frac{\sqrt{2}}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}}$$

$$= \frac{\sqrt{10}}{\sqrt{25}} = \boxed{\frac{\sqrt{10}}{5}}$$

$$26) \frac{-7-\sqrt{5}}{10-4\sqrt{3}} \cdot \frac{10+4\sqrt{3}}{10+4\sqrt{3}}$$

$$= \frac{-70-28\sqrt{3}-10\sqrt{5}-4\sqrt{15}}{100+40\sqrt{3}-40\sqrt{3}-16 \cdot 3}$$

$$= \frac{-70-28\sqrt{3}-10\sqrt{5}-4\sqrt{15}}{100-(16 \cdot 3)}$$

$$= \frac{-70-28\sqrt{3}-10\sqrt{5}-4\sqrt{15}}{52}$$

$$= \boxed{\frac{-35-14\sqrt{3}-5\sqrt{5}-2\sqrt{15}}{26}}$$