Honors Algebra 2

Extra Practice Problems

Bryan Bain

May 23, 2021

Contents

Chapter 1

Equations and Inequalities

Equations

Solve each equation. Round decimal answers to 2 decimal places.

1. $-7x + 5 = -10x + 11$
2. $\frac{2}{3}x - 10 = \frac{5}{8}$
3. $-0.2x - 3(x + 1.4) = -5.2x + 1$
4. $1.3 + 2.1(6.3x + 12) = -19.7$
5. $\frac{1}{4}x + \frac{3}{7} = -2\left(x + \frac{3}{8}\right)$

Solve each for the variable indicated.

6. $F = ma$; for a
7. $PV = nRT$; for n
8. $m = \frac{y_2 - y_1}{x_2 - x_1}$; for y_2

Inequalities

Solve each inequality. Graph your answers on a number line.

1. $2(x + 2) \leq 4x - 2(x - 1)$
2. $-3.2x - 5(x - 1.5) > 7.7 + 1.8x$

1.1 Answer Key

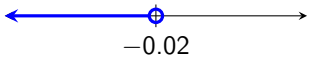
Equations

1. $x = 2$
2. $x = \frac{255}{16}$
3. $x = 2.6$
4. $x = -3.49$
5. $x = -\frac{11}{21}$
6. $a = \frac{F}{m}$
7. $n = \frac{PV}{RT}$
8. $y_2 = m(x_2 - x_1) + y_1$

Inequalities

1. $\emptyset$

2. $x < -0.02$



Chapter 2

Compound Inequalities

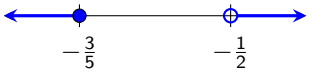
Solve each. Graph your answers on a number line.

1. $-3 < x - 8 \leq 12$
2. $7 \leq 2x - 5 < 18$
3. $x + 8 < 10$ or $5x - 9 \geq 26$
4. $x - 1.5 > 8$ or $-x + 2 > 9$
5. $4 \leq x + 7 < 9$
6. $-2 < 6x + 10 \leq 5$
7. $3x > 9$ or $-5x > 25$
8. $8x + 12 \leq 20$ or $x + 12 > 9$
9. $-8 \leq 3x + 7 < 40$
10. $-5x + 9 \geq 12$ or $2x + 6 > 5$
11.

Answer Key

1. $5 < x \leq 20$
2. $6 \leq x < \frac{23}{2}$
3. $x < 2$ or $x \geq 7$
4. $x < -7$ or $x > \frac{19}{2}$
5. $-3 \leq x < 2$
6. $-2 < x \leq -\frac{5}{6}$
7. $x < -5$ or $x > 3$
8. $\mathbb{R}$
9. $-5 \leq x < 11$

10. $x \leq -\frac{3}{5}$ or $x > -\frac{1}{2}$



Chapter 3

Absolute Value Equations and Inequalities

3.1 Absolute Value Equations

Solve each of the following.

1. $|2x| = 10$
2. $|3x - 7| = 8$
3. $|5x + 1| = -4$
4. $|x + 7| = 9$
5. $|8x + 16| = -24$

3.2 Absolute Value Inequaltiies

Solve each. Graph your answers on a number line.

1. $|x - 9| < 10$
2. $|-x + 1| \geq 7$
3. $|x + 8| < -1$
4. $|6x - 18| < 42$
5. $|-2x + 1| \geq 9$

Answer Key

Absolute Value Equations

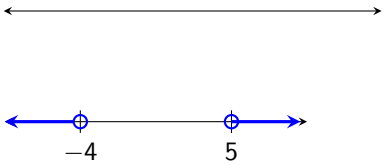
1. $x = \pm 5$
2. $x = -\frac{1}{3}$ or $x = 5$
3. $\emptyset$
4. $x = 2$ or $x = -16$
5. $\emptyset$

Absolute Value Inequalities

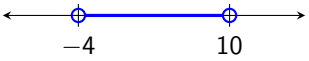
1. $-1 < x < 19$

2. $x \leq -6$ or $x \geq 8$

3. $\emptyset$



4. $-4 < x < 10$



5. $x \leq -4$ or $x \geq 5$

Chapter 4

Factoring Techniques

Factor each completely.

1. $x^2 + 2x - 15$
2. $a^2 - 15a + 56$
3. $8x^2 + 10x + 3$
4. $w^2 + w - 12$
5. $5b^2 - 9b - 2$
6. $12x^2 + 40x - 7$

Answer Key

1. $(x+5)(x-3)$
2. $(a-8)(a-7)$
3. $(4x+3)(2x+1)$
4. $(w+4)(w-3)$
5. $(b-2)(5b+1)$
6. $(2x+7)(6x-1)$