

8th Grade Math: Linear Equations and Systems Practice

1. Solve for x:

1. $2(3x + 4) = 5x + 3x - 4$
 2. $3(2x + 5) = 4x + 2x - 1$
 3. $4(x + 6) = 5x + x - 2$
 4. $2(5x - 3) = 6x + 4x + 2$
 5. $5(2x + 1) = 7x + 3x - 5$
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2. Word Problems: Equal Cost

1. Music school: Option 1: \$30 joining fee and \$15 per lesson, Option 2: \$0 joining fee and \$20 per lesson. How many lessons for same cost?
 2. Gym: Option 1: \$50 joining fee and \$10 per visit, Option 2: \$0 joining fee and \$15 per visit. How many visits for same cost?
 3. Tutoring: Option 1: \$25 joining fee and \$18 per session, Option 2: \$0 joining fee and \$23 per session. How many sessions for same cost?
 4. Dance studio: Option 1: \$60 joining fee and \$12 per class, Option 2: \$0 joining fee and \$18 per class. How many classes for same cost?
 5. Swim club: Option 1: \$45 joining fee and \$14 per session, Option 2: \$0 joining fee and \$19 per session. How many sessions for same cost?
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3. Solve Systems of Equations (Multiple Choice)

1. $2x + 4y = 10$
 $x + 2y = 5$
A. (1,2) B. (3,1) C. (0,5) D. (2,3)
2. $4x + y = 9$
 $2x + y = 5$
A. (1,3) B. (2,1) C. (2,5) D. (4,1)
3. $3x + 2y = 8$
 $x + 2y = 4$
A. (2,1) B. (1,2) C. (4,0) D. (0,4)
4. $5x + y = 11$
 $3x + y = 7$
A. (2,1) B. (1,4) C. (3,2) D. (4,-1)

5. $2x + 3y = 12$
 $x + 3y = 9$
A. (3,2) B. (1,3) C. (0,4) D. (2,2)
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4. Solve Systems of Equations (Ordered Pairs)

1. $4x + 3y = 32$
 $7x - 3y = -10$
(,)
2. $5x + 2y = 28$
 $8x - 2y = 4$
(,)
3. $3x + 4y = 26$
 $6x - 4y = 2$
(,)
4. $7x + 3y = 31$
 $5x - 3y = 5$
(,)
5. $4x + y = 18$
 $9x - y = 12$
(,)
6. $6x + 5y = 47$
 $11x - 5y = 7$
(,)
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5. Solve for x: Fraction Equations (Multiple Choice)

1. $\frac{1}{3}x - \frac{5}{3} = -\frac{2}{5}(4x - 1)$
A. $\frac{5}{6}$ B. $\frac{25}{19}$ C. $-\frac{25}{11}$ D. $-\frac{10}{11}$
2. $\frac{1}{4}x - \frac{3}{2} = -\frac{1}{6}(6x - 3)$
A. $\frac{3}{4}$ B. $\frac{18}{13}$ C. $-\frac{18}{7}$ D. $-\frac{6}{7}$
3. $\frac{1}{5}x - \frac{9}{5} = -\frac{3}{4}(2x - 6)$
A. $\frac{9}{10}$ B. $\frac{36}{23}$ C. $-\frac{36}{13}$ D. $-\frac{12}{13}$
4. $\frac{1}{2}x - \frac{5}{4} = -\frac{1}{8}(8x - 4)$
A. $\frac{5}{8}$ B. $\frac{20}{11}$ C. $-\frac{20}{9}$ D. $-\frac{10}{9}$
5. $\frac{2}{3}x - \frac{7}{6} = -\frac{1}{4}(6x - 2)$
A. $\frac{7}{12}$ B. $\frac{14}{17}$ C. $-\frac{14}{11}$ D. $-\frac{7}{11}$
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6. Solve for x: Multi-step Equations (Multiple Choice)

1. $-4(x + 8) + 6 - 3x = 1 + 7x - 5$
A. -4 B. -1 C. 2 D. 6
 2. $-2(x + 12) + 5 - 4x = 3 + 8x - 7$
A. -3 B. -1 C. 2 D. 5
 3. $-5(x + 6) + 3 - 2x = 4 + 9x - 8$
A. -2 B. 1 C. 3 D. 7
 4. $-3(x + 10) + 2 - 6x = 1 + 11x - 9$
A. -1 B. 2 C. 4 D. 6
 5. $-6(x + 5) + 7 - x = 2 + 8x - 6$
A. -3 B. 0 C. 2 D. 5
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Answer Key

1. **Solve for x:** 1) $x = 0$ 2) $x = 1$ 3) $x = 2$ 4) $x = 1$ 5) $x = 0$
3. **Systems (MC):** 1) A 2) B 3) A 4) A 5) A
5. **Fractions (MC):** 1) B 2) C 3) C 4) B 5) C
6. **Multi-step (MC):** 1) B 2) C 3) C 4) B 5) C