Year 9 two-step equations worksheet

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Name: _____ Date: _____

Question 1

Solve:

(a) 5x - 7 = 18

(b) x/4 + 3 = -2

(c) 12 - 3x = 27

Answer: _____

Question 2

Solve (2x + 5)/(3) = 7.

Answer: _____

Question 3

Solve:

(a) 3x/4 = 9

(b) 3 - x/5 = 1

Answer: _____

Question 4

Solve each equation, then check your answer by substituting it back into the equation.

(a) 7 - 2x = -9

(b) (5 - x)/(2) = 6

(c) 0.4x + 1.2 = 3.6

Answer: _____

Question 5

Solve (3x - 4)/(5) = 4.

Answer: _____

Question 6

Solve:

(a) x + 9 = 15

(b) 4x = 28

(c) 2x - 5 = 13

Answer: _____

Year 9 two-step equations: answers and worked solutions

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Question 1

Key idea: Undo the operations in reverse order, doing the same thing to both sides.

1. (a) Add 7: 5x = 25; divide by 5: x = 5 2. (b) Subtract 3: x/4 = -5; multiply by 4: x = -20 3. (c) Subtract 12: -3x = 15; divide by -3: x = -5

Answer: (a) x = 5 (b) x = -20 (c) x = -5

Question 2

Key idea: Multiply both sides by the denominator first, then solve the two-step equation.

1. Multiply by 3: 2x + 5 = 21 2. Subtract 5: 2x = 16 3. Divide by 2: x = 8

Answer: x = 8

Question 3

Key idea: Isolate the term containing x, then undo the multiplication or division.

1. (a) Multiply by 4: 3x = 36; divide by 3: x = 12 2. (b) Subtract 3: -x/5 = -2; multiply by -5: x = 10

Answer: (a) x = 12 (b) x = 10

Question 4

Key idea: Perform the same operation on both sides until x is alone. A check confirms the left side equals the right side.

1. (a) Subtract 7: -2x = -16; divide by -2: x = 8. Check: 7 - 2(8) = 7 - 16 = -9 ✓ 2. (b) Multiply by 2: 5 - x = 12; subtract 5: -x = 7, so x = -7. Check: (5 - (-7))/(2) = 12/2 = 6 ✓ 3. (c) Subtract 1.2: 0.4x = 2.4; divide by 0.4: x = 6. Check: 0.4(6) + 1.2 = 2.4 + 1.2 = 3.6 ✓

Answer: (a) x = 8 (b) x = -7 (c) x = 6

Question 5

Key idea: Undo the operations in reverse order.

1. Multiply both sides by 5: 3x - 4 = 20 2. Add 4: 3x = 24 3. Divide by 3: x = 8

Answer: x = 8

Question 6

Answer: (a) x = 6 (b) x = 7 (c) x = 9