

Name: _____

Two-column Algebraic Proofs Practice Worksheet

Solve each equation. Write a reason for each step.

1) $-4x + 10 = -5x + 18$ Prove: $x = 8$

Statements

Reasons

a. $-4x + 10 = -5x + 18$

Given

b. _____

c. _____

d. $x = 8$

Substitution Prop.

2) $4x = 12x + 32$

Prove: $x = -4$

Statements

Reasons

a. $4x = 12x + 32$

Given

b. _____

c. _____

3) $\frac{3x + 5}{2} = 7$

Prove: $x = 3$

Statements

Reasons

a. $\frac{3x + 5}{2} = 7$

Given

b. _____

c. _____

d. _____

4) $5(x + 2) = -3x - 6$

Prove: $x = -2$

Statements

Reasons

a. $5(x + 2) = -3x - 6$

Given

b. _____

c. _____

d. _____

e. _____

5) $4 + 2(3x + 5) = 11 - x$ Prove: $x = -\frac{3}{7}$

Statements

Reasons

a. $4 + 2(3x + 5) = 11 - x$

Given

b. _____

c. _____

d. _____

e. _____

6) $3 + 4(x - 2) = 27$

Prove: $x = 8$

Statements

Reasons

a. $3 + 4(x - 2) = 27$

Given

b. _____

c. _____

d. _____

Name: _____

Two-column Algebraic Proofs Practice Worksheet

Answers

1) $-4x + 10 = -5x + 18$

Prove: $x = 8$

Statements

Reasons

a. $-4x + 10 = -5x + 18$

Given

b. $x + 10 = 18$

Addition Prop.

c. $x + 10 - 10 = 18 - 10$

Subtraction Prop.

d. $x = 8$

Substitution Prop.

2) $4x = 12x + 32$

Prove: $x = -4$

Statements

Reasons

a. $4x = 12x + 32$

Given

b. $-8x = 32$

Subtraction Prop.

c. $x = -4$

Division Prop.

3) $\frac{3x + 5}{2} = 7$

Prove: $x = 3$

Statements

Reasons

a. $\frac{3x + 5}{2} = 7$

Given

b. $3x + 5 = 14$

Multiplication Prop.

c. $3x = 9$

Subtraction Prop.

d. $x = 3$

Division Prop.

4) $5(x + 2) = -3x - 6$

Prove: $x = -2$

Statements

Reasons

a. $5(x + 2) = -3x - 6$

Given

b. $5x + 10 = -3x - 6$

Distributive Prop.

c. $8x + 10 = -6$

Addition Prop.

d. $8x = -16$

Subtraction Prop.

e. $x = -2$

Division Prop.

5) $4 + 2(3x + 5) = 11 - x$

Prove: $x = -\frac{3}{7}$

Statements

Reasons

a. $4 + 2(3x + 5) = 11 - x$

Given

b. $4 + 6x + 10 = 11 - x$

Distributive Prop.

c. $7x + 14 = 11$

Addition Prop.

d. $7x = -3$

Subtraction Prop.

e. $x = -\frac{3}{7}$

Division Prop.

6) $3 + 4(x - 2) = 27$

Prove: $x = 8$

Statements

Reasons

a. $3 + 4(x - 2) = 27$

Given

b. $4(x - 2) = 24$

Subtraction Prop.

c. $x - 2 = 6$

Division Prop.

d. $x = 8$

Addition Prop.