Pre-Calculus 11
Prerequisite Skills Review

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BEDMAS

BEDMAS Order

- Brackets
- Exponents
- Divide
- Multiply
- Add
- Subtract

BEDMAS Practice

Practice Problems

Evaluate each expression:

1. 4×7
2. $(15 + 9)^2$
3. $(-6)^2 - 3 \times 4$
4. $(14 + 5)^2$
5. $\frac{8^2 + 5^2}{4 - 5}$
6. $\frac{3^3}{4^2}$

Solutions

1. $4 \times 7 = 28$
2. $(15 + 9)^2 = 24^2 = 576$
3. $(-6)^2 - 3 \times 4 = 36 - 12 = 24$

BEDMAS Solutions - Part 2

Solutions

4. $(14 + 5)^2 = 19^2 = 361$
5. $\frac{8^2 + 5^2}{4 - 5} = \frac{64 + 25}{-1} = -89$
6. $\frac{3^3}{4^2} = \frac{27}{16}$

Solving Equations - Practice

Key Steps

- Isolate the variable
- Perform the same operation on both sides
- Simplify step by step

Practice Problems

Solve each equation:

1. $4x = 16$
2. $\frac{7x}{5} = 14$
3. $5x - 15 = -35$
4. $6x + 17 = -13$
5. $5(9x - 4) = 8x + 7$

Solving Equations - Solutions Part 1

Detailed Solutions

1. $4x = 16$
   Step 1: Divide both sides by 4
   $\frac{4x}{4} = \frac{16}{4}$
   $x = 4$

2. $\frac{7x}{5} = 14$
   Step 1: Multiply both sides by 5
   $7x = 70$
   Step 2: Divide both sides by 7
   $x = 10$

Solving Equations - Solutions Part 2

Detailed Solutions

3. $5x - 15 = -35$
   Step 1: Add 15 to both sides
   $5x = -20$
   Step 2: Divide both sides by 5
   $x = -4$

4. $6x + 17 = -13$
   Step 1: Subtract 17 from both sides
   $6x = -30$
   Step 2: Divide both sides by 6
   $x = -5$

Solving Equations - Solutions Part 3

Detailed Solutions

5. $5(9x - 4) = 8x + 7$

   Step 1: Distribute the 5

   $45x - 20 = 8x + 7$

   Step 2: Move all x terms to one side

   $45x - 8x = 7 + 20$

   Step 3: Combine like terms

   $37x = 27$

   Step 4: Divide both sides by 37

   $x = \frac{27}{37}$

Table of Values - Practice

Practice Problems

Complete the table of values for each equation:

1. $y = 6x - 4$

x	y
2	
5	
8	

2. $4x + 5y = 30$

x	y
0	
3	
6	
9	

Table of Values - Solutions Part 1

Solution for y

Step 1: For each x value, substitute into the equation

When x = 2: $y = 6(2) - 4 = 12 - 4 = 8$

When x = 5: $y = 6(5) - 4 = 30 - 4 = 26$

When x = 8: $y = 6(8) - 4 = 48 - 4 = 44$

x	y
2	8
5	26
8	44

Table of Values - Solutions Part 2

Solution for $4x + 5y$

Step 1: Solve for y

$5y = 30 - 4x$

$y = 6 - \frac{4x}{5}$

Step 2: Substitute x values

When x = 0: $y = 6 - \frac{4(0)}{5} = 6$

When x = 3: $y = 6 - \frac{4(3)}{5} = 3.6$

When x = 6: $y = 6 - \frac{4(6)}{5} = 1.2$

When x = 9: $y = 6 - \frac{4(9)}{5} = -1.2$

x	y
0	6
3	3.6
6	1.2
9	-1.2

Lines: Slopes and Y-intercepts - Practice

Standard Form: y

- $m =$ slope
- $b =$ y-intercept

Practice Problems

Find slope and y-intercept for each equation:

1. $y = 4x + 3$
2. $y = -7x + 5$
3. $y = 0.8x + 12$
4. $3x + y = 15$
5. $\frac{18x - 9}{3} = y$
6. $9x + 12y = -6$

Lines: Slopes and Y-intercepts - Solutions Part 1

Detailed Solutions

1. $y = 4x + 3$
   Slope = 4 (coefficient of x)
   Y-intercept = 3 (constant term)

2. $y = -7x + 5$
   Slope = -7 (coefficient of x)
   Y-intercept = 5 (constant term)

3. $y = 0.8x + 12$
   Slope = 0.8 (coefficient of x)
   Y-intercept = 12 (constant term)

Detailed Solutions

4. $3x + y = 15$
   Step 1: Solve for y
   $y = -3x + 15$
   Slope = -3
   Y-intercept = 15

5. $\frac{18x - 9}{3} = y$
   Step 1: Simplify
   $y = 6x - 3$
   Slope = 6
   Y-intercept = -3

Detailed Solutions

6. $9x + 12y = -6$
   Step 1: Solve for y
   $12y = -9x - 6$
   Step 2: Divide by 12
   $y = -\frac{9}{12}x - \frac{6}{12}$
   Step 3: Simplify
   $y = -\frac{3}{4}x - \frac{1}{2}$
   Slope $= -\frac{3}{4}$
   Y-intercept $= -\frac{1}{2}$

Isolating Variables - Practice

Key Steps

- Move all terms with the variable to one side
- Move all other terms to the opposite side
- Factor out the variable if necessary
- Divide by the coefficient

Practice Problems

Isolate x in each equation:

1. $bd + cx = e$
2. $bx + c = fx + d$

Isolating Variables - Solutions

Detailed Solutions

1. $bd + cx = e$
   Step 1: Move bd to the other side
   $cx = e - bd$
   Step 2: Divide by c
   $x = \frac{e-bd}{c}$

2. $bx + c = fx + d$
   Step 1: Move all x terms to one side
   $bx - fx = d - c$
   Step 2: Factor out x
   $x(b - f) = d - c$
   Step 3: Divide by (b - f)
   $x = \frac{d-c}{b-f}$

Summary

Key Concepts

- BEDMAS order of operations
- Solving equations step by step
- Creating and using tables of values
- Understanding slopes and y-intercepts
- Isolating variables in equations