

Pre-Calc Algebra Review Pre-Quiz

Name _____

1) Evaluate when $x = -3$ and $y = 4$

a) $-2(x) + (xy)$
 $-2(-3) + (-3)(4)$
 $6 + -12 = \boxed{-6}$

b) $\frac{3(x) - 2(y)}{y + 2} = \frac{3(-3) - 2(4)}{4 + 2}$
 $\frac{-9 - 8}{6} = \boxed{\frac{-17}{6}}$

2) Solve these equations:

a) $5x - 7 = 2 + 2x$
 $-2x \quad -2x$
 $3x - 7 = 2$
 $+7 \quad +7$
 $3x = 9$
 $\frac{3x}{3} = \frac{9}{3} \quad \boxed{x = 3}$

b) $2(4x - 6) = 6x - 6$
 $8x - 12 = 6x - 6$
 $-6x \quad -6x$
 $2x - 12 = -6$
 $+12 \quad +12$
 $2x = 6$
 $\frac{2x}{2} = \frac{6}{2} \quad \boxed{x = 3}$

3) Simplify each expression. Express the answer so that all exponents are positive.

a) $(5x^2y^{-3})^3$
 $5^3(x^2)^3(y^{-3})^3$
 $125x^6y^{-9}$
 $\frac{125x^6}{y^9}$

b) $\frac{x^7y^3}{x^2y^6}$
 $\frac{x^5}{y^3}$

4) Do these values form a right triangle?

a) 5, 12, 13
 $5^2 + 12^2 ? 13^2$
 $25 + 144 = 169$
 $169 = 169 \quad \boxed{YES}$

b) 4, 5, 8
 $4^2 + 5^2 ? 8^2$
 $16 + 25 = 41$
 $41 \neq 64 \quad \boxed{NO}$

5) Identify the slope of each equation of line.

a) $\frac{2y}{2} = \frac{4x - 6}{2}$
 $y = 2x - 3 \quad \boxed{Slope = 2}$

b) $6y - 12x = 18$
 $+12x \quad +12x$
 $6y = 18 + 12x$
 $\frac{6y}{6} = \frac{18}{6} + \frac{12x}{6}$
 $y = 3 + 2x \quad \boxed{Slope = 2}$

6) Factor each expression.

a) $x^2 + 8x + 12$
 $(x + 6)(x + 2)$

b) $x^2 - 1x - 12$
 $(x - 4)(x + 3)$

c) $x^2 - 9x + 20$
 $(x - 5)(x - 4)$

7) Simplify

a) $(2x + 7) + (9 - 5x)$
 $2x + 7 + 9 - 5x$
 $\boxed{-3x + 16}$

b) $(8 - 12x) - (7 - 2x)$
 $8 - 12x - 7 + 2x$
 $\boxed{-10x + 1}$

8) Expand. Express your answer as a single polynomial in standard form.

a) $(4x + 3)(x - 2)$

| | | |
|------|-------------------------|------|
| | $4x$ | 3 |
| x | $4x^2$ | $3x$ |
| -2 | $-8x$ | -6 |
| | $\boxed{4x^2 - 5x - 6}$ | |

b) $(5x - 2)(x^2 + 3x + 7)$

| | | | |
|------|-----------------------------------|---------|-------|
| | x^2 | $3x$ | 7 |
| $5x$ | $5x^3$ | $15x^2$ | $35x$ |
| -2 | $-2x^2$ | $-6x$ | -14 |
| | $\boxed{5x^3 + 13x^2 + 29x - 14}$ | | |