Key

I ♡ Exponents!

Directions: *Simplify each expression. Identify matching answers between Column 1 and Column 2, then color the heart accordingly.*

Column 1

1. $2x^5y \cdot 3x^2y$ — $6x^7y^2$
2. $(4x^4y)^2 \cdot 2x^3y^4$ — $32x^{11}y^6$
3. $\frac{36x^9y^4}{4x^7y^3}$ — $9x^2y$
4. $\frac{(2xy^5)^3}{2x^3y^8}$ — $4y^7$
5. $(-5x^6y^2)^2 - 12x^{12}y^4$ — $13x^{12}y^4$
6. $\frac{6x^{10}y^4}{3x^8y^7}$ — $\frac{2x^2}{y^3}$
7. $6x^{-1}y^5 \cdot 4x^{-4}y^{-2}$ — $24x^{-5}y^3$ — $\frac{24y^3}{x^5}$
8. $(3x^{-6}y^2)^3 \cdot 2x^{10}y^{-7}$ — $27x^{-18}y^6$ — $\frac{54}{x^8y}$
9. $\frac{(-2xy)^2 \cdot 10x^3y^{11}}{8x^{10}y^4}$ — $4x^2y^2 \cdot 10x^3y^{11} = \frac{40x^5y^{13}}{8x^{10}y^4}$ — $\frac{5y^7}{x^5}$
10. $\frac{8x^3 \cdot 12xy^7}{3x^2y^4} - 15x^2y^3$ — $\frac{96x^4y^7}{3x^2y^4} = 32x^2y^3$ — $17x^2y^3$

Column 2

Red: $x^4y^8 \cdot 5x^{-9}y$ — $5x^{-5}y^9$ — $\frac{5y^9}{x^5}$ (#9)

Orange: $\frac{(6x^2y^3)^2}{4x^2y^5}$ — $\frac{36x^4y^6}{4x^2y^5}$ — $9x^2y$ (#3)

Yellow: $(3x^{-3}y)^3 \cdot 2xy^{-4}$ — $3^3x^{-9}y^3 \cdot 2xy^{-4}$ — $\frac{54}{x^8y}$ (#8)

Light Green: $\frac{(3x^5y^5)^3}{3x^3y^{11}} + 4x^{12}y^4$ — $\frac{27x^{15}y^{15}}{3x^3y^{11}} = 9x^{12}y^4$ — $13x^{12}y^4$ (#5)

Dark Green: $\frac{34x^{10}y^9}{2x^8y^6}$ — $17x^2y^3$ (#10)

Light Blue: $\frac{42x^9y^5}{7x^2y^3}$ — $6x^7y^2$ (#1)

Dark Blue: $3x^{-4}y^9 \cdot 8x^{-1}y^{-6}$ — $24x^{-5}y^3$ — $\frac{24y^3}{x^5}$ (#7)

Purple: $(2x^{-2}y^3)^4 \cdot 2x^{19}y^{-6}$ — $16x^{-8}y^{12} = 32x^{11}y^6$ — $32x^{11}y^6$ (#2)

Pink: $\frac{(-8x^3y^2)^2 \cdot 2x^2y^6}{32x^8y^3}$ — $\frac{64x^6y^4 \cdot 2x^2y^6}{32x^8y^3}$ — $4y^7$ (#4)

Brown: $\frac{3x^3y^4 \cdot 6xy^{-5}}{(3xy)^2}$ — $\frac{18x^4y^{-1}}{9x^2y^2}$ — $\frac{2x^2}{y^3}$ (#6)