

1. Simplify each expression.

a. $\sqrt{\frac{14x^3y}{5x^2}} \cdot \sqrt{\frac{7x^4y^3}{5x^2}}$

b. $\left(\frac{6x^4y^2}{4x^3y^4}\right)^{-1} + \frac{21x^5y^{-3}}{9x^6y^{-5}}$

2. Solve the compound inequalities. Describe the set of solutions in interval and set notation.

a. $3t - 1 > -1$ and $2t - \frac{1}{2} > 6$

b. $x - 4 \geq -3$ or $x - 4 \leq 3$

3. Find the function form of the line which passes through (-3,2) and is parallel to the line passing through (-2,3) and (1,-2). Begin with the point-slope form of a line and then simplify this into slope-intercept form.

4. In Lewis Carroll's *Through the Looking Glass*, the following dialog takes place:

Tweedledum (to Tweedledee): The sum of your weight and twice mine is 361 pounds.

Tweedledee (to Tweedledum): Contrariwise, the sum of your weight and twice mine is 362 pounds.

Find the weight of each of the two characters.

SOLUTIONS:

1a) $\frac{7x^2y^2\sqrt{2x}}{5}$

1b) $\frac{3y^2}{x}$

2a) $(\frac{13}{4}, \text{inf}), \{t|t > \frac{13}{4}\}$

2b) $(-\text{inf}, \text{inf}), \mathbb{R}$

3) The point-slope form is $f(x) = -\frac{5}{3}(x + 3) + 2$ and the slope intercept form is $f(x) = -\frac{5}{3}x - 3$

4) Tweedledee weighs 121 pounds and Tweedledum weighs 120 pounds.