

1. Which of the following is equivalent to $(3x^2y)(10x^5y^3)$?

- (1) $30x^{10}y^3$ (2) $30x^7y^4$ (3) $13x^7y^4$ (4) $13x^{10}y^3$

*2. If the expression $(2x^4)^3$ was written in ax^b form, which of the following would be the sum of a and b ?

- (1) 20 (2) 14 (3) 9 (4) 18

3. A square field has a side length of 6×10^3 meters. Which of the following is its area in square meters?

- (1) 6×10^6 (2) 36×10^9 (3) 36×10^6 (4) 6×10^9

*4. Rewrite each expression as the product of two fractions, one of which is equal to 1. Then, write it as an equivalent, but simpler, expression.

- (a) $\frac{10^5}{10^2}$ (b) $\frac{x^2}{x^6}$ (c) $\frac{x^4y}{xy^8}$

5. Write each of the following expressions equivalently in simplest form.

- (a) $\frac{4x^7}{8x^3}$ (b) $\frac{15x^{10}}{10x^2}$ (c) $\frac{16x}{20x^3}$

6. For each of the following fractions, first simplify the numerator and denominator, then simplify the overall fraction. The first is done as an example.

- (a) $\frac{(2x^2)^3}{(4x)^2}$ $= \frac{8x^6}{16x^2} = \frac{x^4}{2}$ (b) $\frac{(10x^4)^2}{(5x^2)^3}$ (c) $\frac{(6x)^2}{(4x^2)^3}$

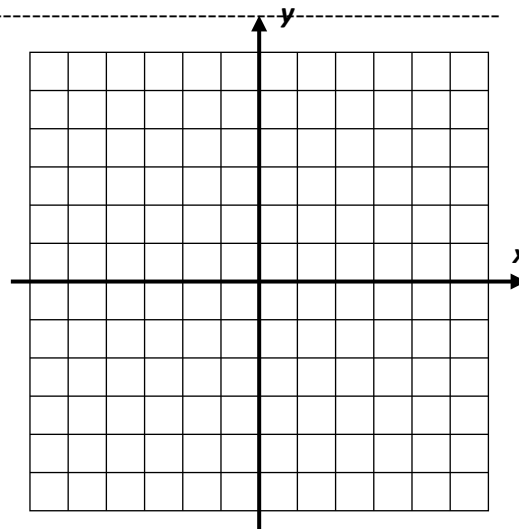
R1. Consider the system of inequalities shown below:

$$y \geq x + 2$$

$$y \leq x - 3$$

(a) Graph the system solution to the system on the grid.

(b) Why can you **not** state a point in the solution set?



*R2. Simplify: $(8x^5 + 5x) - 3(x^5 + 2)$

R3. Subtract $6x^2 + 3x - 2$ from the sum of $x^2 + 2x - 8$ and $3x^2 + 5x - 1$

*R4. Evaluate $3p^2 - 4y$ if $p = -2$ and $y = -1$

*R5. From $3x^2 + 2x - 9$ subtract $x^2 + 6x - 7$

R6. Simplify: $2x^3(5x^2 - x) - 4x^4(2x - 8)$

1. (2)

2. (1)

3. (3)

4. (a) $\frac{10^2}{10^2} \cdot \frac{10^3}{1} = 10^3$

(b) $\frac{x^2}{x^2} \cdot \frac{1}{x^4} = \frac{1}{x^4}$

(c) $\frac{xy}{xy} \cdot \frac{x^3}{y^7} = \frac{x^3}{y^7}$

5. (a) $\frac{x^4}{2}$

(b) $\frac{3x^8}{2}$

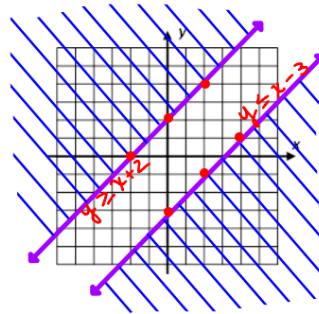
(c) $\frac{4}{5x^2}$

6. (a) given

(b) $\frac{100x^8}{125x^6} = \frac{4x^2}{5}$

(c) $\frac{36x^2}{64x^6} = \frac{9}{16x^4}$

R1. (a)



(b) The solutions never overlap.

R2. $5x^5 + 5x - 6$

R3. $-2x^2 + 4x - 7$

R4. 16

R5. $2x^2 - 4x - 2$

R6. $2x^5 + 30x^4$