Homework Review - 8.3

#51

$$\frac{10^{-2}\ \text{grams}}{1\ \text{grain}} \times \frac{10^{3}\ \text{grams}}{1\ \text{box}} = \frac{\text{grains}}{\text{box}}$$

$$\frac{\text{grams}^2}{\text{grains} \cdot \text{box}}$$

$$\frac{1\ \text{grain}}{10^{-2}\ \text{grams}} \times \frac{10^{3}\ \text{grams}}{\text{box}} =$$

$$\frac{\text{grain} \cdot \text{gram}}{\text{gram} \cdot \text{box}}$$

$$\frac{1}{10^{-2}} \times 10^{3} = 10^{2} \times 10^{3} = 10^{5}\ \frac{\text{grains}}{\text{box}}$$

$$30\ \frac{\text{miles}}{\text{hr}} \cdot \frac{1\ \text{hr}}{60\ \text{min}} \cdot \frac{1\ \text{min}}{60\ \text{sec}} \cdot \frac{1.6\ \text{km}}{\text{mi}} \quad \boxed{\frac{\text{km}}{\text{sec}}}$$

53

$$\frac{10^{-2}\ L}{1\ sample} \qquad \frac{10^{-1}\ L}{10^{7}\ cells} \qquad \frac{cells}{sample}$$

$$\frac{10^{-2}\ L}{sample} \cdot \frac{10^{7}\ cells}{10^{-1}\ L} =$$

$$10^{-2} \cdot \frac{10^{7}}{10^{-1}}$$

$$10^{-2} \cdot 10^{13} = \boxed{10^{11}\ \frac{cells}{sample}}$$

Neat, Mr. Bregar. Good work for an all exit

(41) $\dfrac{9}{(3d)^{-3}} = 9\cdot(3d)^3 = 9\cdot 3^3\cdot d^3$

$= 243\,d^3$

$\dfrac{27}{243}$

$= 3^2\cdot 3^3\cdot d^3$

$= 3^5 d^3$

(38) $\dfrac{1}{8\cdot x^{-2}\cdot y^{6}} = \dfrac{x^2 y^6}{8} = 8^{-1}x^2y^6$

Adding and Subtracting Polynomials

2 $4x$ $3x^2$ $\frac{1}{2}x^2y^3$

0 1 2 5

What is a monomial?

#, variable, multiplied together, whole number (+) exponent

$2+x$ $2x^2-2$ $2x^{3.4}$ $3\frac{y}{x}$

What is NOT a monomial?

Addition, subtraction, decimal or negative exponent, variable in denominator

What is a polynomial?

any number of monomials added (or subtracted) together

$2x^2 + 7xy + 3y$

2 2 1

2

What is the "degree" of a polynomial?

- Find the degree of each monomial by add the exponents of all the variables
- Degree of a polynomial = largest monomial degree

Writing/rewriting Polynomials

→ $5 + 2z^2y - 6xy^3 + 4x^2y^3z$

0 3 4 6

↪ 6th degree polynomial

Order each term by degree

$4x^2y^3z - 6xy^3 + 2z^2y + 5$

Within each term, alphabetize

→ $4x^2y^3z - 6xy^3 + 2yz^2 + 5$

Bi-, Tri-nomials +

↙

$x + 2y$ ← binomial

$x^2 + 4x + 3$ ← trinomial

Adding and Subtracting Polynomials

$$(3z^2 + z - 4) + (2z^2 + 2z - 3)$$

$$+ 2z^2 + 2z - 3$$

$$5z^2 + 3z - 7$$

Line up like terms horizontally or vertically

✓ Same variables, same exponents = like terms
Constants too

Combine

Make sure to write in correct order

z^2 yz^2

z z^2

9. $(2x^2 + 5x - 1) + (x^2 - 5x + 7)$

$+ \; x^2 - 5x + 7$

$3x^2 + 6$

10. $(10b^2 - 3b + 2) - (4b^2 + 5b + 1)$

11. $(-4m^2 + 3m - 1) - (m + 2)$

$+ \; -m + 2$

$-4m^2 + 2m - 3$

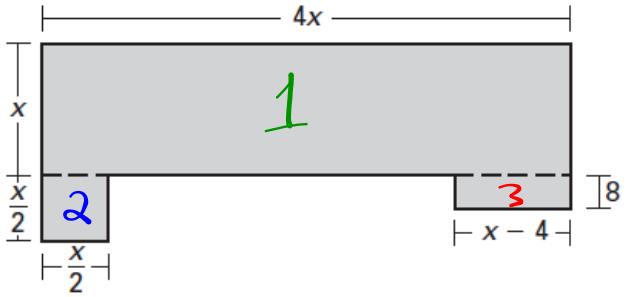
12. $(3m + 4) - (2m^2 - 6m + 5)$

$0m^2 + 3m + 4$

$+ \; -2m^2 + 6m + 5$

$-2m^2 + 9m - 1$

Floor Plan The first floor of a home has the floor plan shown. Find the area of the first floor.



$A_{rect.} = \ell \cdot w$

3 rectangles...

$A_1 = 4x \cdot x = 4x^2$

$A_2 = \frac{x}{2} \cdot \frac{x}{2} = \frac{x^2}{4} = \frac{1}{4}x^2$

$A_3 = (x-4)8 = 8x - 32$

$4x^2 + \frac{1}{4}x^2 + 8x - 32$

$\left(4 + \frac{1}{4}\right)x^2 + 8x - 32$

$\frac{17}{4}x^2 + 8x - 32$

$4\frac{1}{4}x^2 + 8x - 32$

$4 + \frac{1}{4}$

$\frac{16}{4} + \frac{1}{4} = \frac{17}{4}$

Homework:

p. 557, 4-28 even, 30, 40