

1. Simplify. $(-4w^4x^{-3}y)^{-2}\left(\frac{2w^{-3}x^{-5}y^2}{xy^6}\right)^3$

2. The half-life of a medication is 25 minutes. You take a 300mg dose at 9:00am. How much remains at 2:45 pm? Round to the nearest hundredth of a mg.

3. A piece of real estate has been increasing 2.8% each year. The value of the real estate was worth \$230,000 in 2011. Find the value of the real estate in 2004.

4. Expand each.

a) $4m^2(7m^3 - 5m^2 + 6)$

b) $-2a^3b^2(7a^4b^3 - 8a^2b^5)$

5. Expand each using the FOIL method, the "Box" method, or using Distributive Property. Each answer should be a trinomial. Write your answer in Standard Form.

a) $(x + 3)(x - 7)$

b) $(6p - 5)(2p + 9)$

6. Expand. Write your answer in Standard Form. $(3x + 2)(4x^2 - 9x + 5)$

Bellwork Answers

4-12-16

$$\begin{aligned}
 \textcircled{1} \quad & \underbrace{(-4w^4x^{-3}y)^{-2}} & \underbrace{\left(\frac{2w^{-3}x^{-5}y^2}{xy^6}\right)^3} \\
 & = \left((-4)^{-2}w^{-8}x^6y^{-2}\right) & \left(\frac{2^3w^{-9}x^{-15}y^6}{x^3y^{18}}\right) \\
 & \quad \downarrow & \quad \downarrow \\
 & = \left(\frac{x^6}{16w^8y^2}\right) & \left(\frac{8}{w^9x^{18}y^{12}}\right) \\
 & = \frac{8x^6}{16w^{17}x^{18}y^{14}} & = \boxed{\frac{1}{2w^{17}x^{12}y^{14}}}
 \end{aligned}$$

$\textcircled{2}$ base = $\frac{1}{2} = .5$
 original amount 300mg

$$y = 300(.5)^x$$

$$y = 300(.5)^{13.8}$$

$$\boxed{y = 0.02 \text{ mg}}$$

$$\begin{aligned}
 & 9:00 \text{ am to } 2:45 \text{ pm} \\
 & = 5 \text{ hrs } 45 \text{ min} \\
 & = 345 \text{ min} \\
 & \quad \div 25 \\
 & x = 13.8
 \end{aligned}$$

(3.)

base: $100\% + 2.8\% = 102.8\%$
 $\div 100$

$$b = 1.028$$

original amount = 230,000

$$y = 230,000(1.028)^x$$

$$x = 2004 - 2011$$

$$y = 230,000(1.028)^{-7}$$

$$x = -7$$

$$y = \$189,572.80$$

(4) (a) $4m^2(7m^3 - 5m^2 + 6)$

$$= 4m^2 \cdot 7m^3 - 4m^2 \cdot 5m^2 + 4m^2 \cdot 6$$

$$= 28m^5 - 20m^4 + 24m^2$$

(b) $-2a^3b^2(7a^4b^3 - 8a^2b^5)$

$$= (-2a^3b^2)(7a^4b^3) + (2a^3b^2)(8a^2b^5)$$

$$= -14a^7b^5 + 16a^5b^7$$

$$(5) (a) (x+3)(x-7) \rightarrow$$

	x	-7
x	x^2	$-7x$
$+3$	$+3x$	-21

$$= x^2 - 4x - 21$$

$$(b) (6p-5)(2p+9) \rightarrow$$

	$2p$	$+9$
$6p$	$12p^2$	$+54p$
-5	$-10p$	-45

$$= 12p^2 + 44p - 45$$

$$(6) (3x+2)(4x^2-9x+5) \rightarrow$$

	$4x^2$	$-9x$	$+5$
$3x$	$12x^3$	$-27x^2$	$+15x$
$+2$	$+8x^2$	$-18x$	$+10$

$$12x^3 - 19x^2 - 3x + 10$$