

# Diff KEY: 1

①  $x = 2y + 2$   
 $2x + 3y = 11$

$2(2y + 2) + 3y = 11$

$4y + 4 + 3y = 11$

$7y + 4 = 11$   
 $-4 \quad -4$

$\frac{7y}{7} = \frac{7}{7}$

$y = 1$   
 $x = 4$  (4, 1)

②  $x + 2y = -7$   
 $3x - 4y = -1$

$2x + 4y = -14$

$3x - 4y = -1$

$\frac{5x}{5} = \frac{-15}{5}$

$x = -3$

$-3 + 2y = -7$   
 $+3 \quad +3$

$\frac{2y}{2} = \frac{-4}{2}$

$y = -2$

(-3, -2)

③  $n = \# \text{ of nickels}$   
 $q = \# \text{ of quarters}$

$5(n + q) = 25$

$5n + 25q = 385$

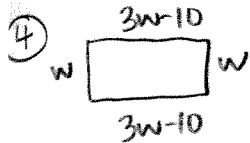
$-5n - 5q = -125$

$\frac{20q}{20} = \frac{260}{20}$

$q = 13$

$n = 12$

12 nickels  
 13 quarters



$w = \text{width}$   $l = \text{length}$

$2w + 2l = 300$  or start from  
 $l = 3w - 10$  from

$2w + 2(3w - 10) = 300$   $8w - 20 = 300$

$2w + 6w - 20 = 300$

$8w - 20 = 300$   
 $+20 \quad +20$

$\frac{8w}{8} = \frac{320}{8}$

$w = 40$

$l = 110$

width is 40 ft  
 length is 110 ft

⑤  $x = \text{price of package of balloons}$

$y = \text{price of package of party favors}$

$2(3x + 4y) = 14.63$

$3(2x + 5y) = 16.03$

$6x + 8y = 29.26$

$-6x - 15y = -48.09$

$\frac{-7y}{-7} = \frac{-18.83}{-7}$

$y = 2.69$

$3x + 4(2.69) = 14.63$

$3x + 10.76 = 14.63$   
 $-10.76 \quad -10.76$

$\frac{2x}{3} = \frac{3.87}{3}$

$x = 1.29$

A package of balloons costs \$1.29

⑥  $x^4 \cdot x^{-4} = x^0 = 1$

⑦  $xy^{-6}(xy)^3$   
 $xy^{-6} \cdot x^3y^3$   
 $x^4y^{-3} = \frac{x^4}{y^3}$

⑧  $(4x^{-3}y)^3$   
 $64x^{-9}y^3 = \frac{64y^3}{x^9}$

⑨  $\frac{15x^7y^3}{3x^4y^{-5}}$   
 $5x^3y^8$

⑩ Model:  $y = 1200(0.91)^x$   
 $y = 1200(0.91)^5 = 748.84$

⑪  $y = 1800(1.04)^{12}$   
 $y = 2881.86$

⑫  $(-3x^2 + 4x^5 + 1) + (10x^5 - 7 - 9x^2)$   
 $14x^5 - 12x^2 - 6$

13)  $(-2x^4 + 10x) - (3x - 8 + 5x^4)$   
 $-3x + 8 - 5x^4$

$-7x^4 + 3x + 8$

14)  $-5y^2(y^8 + 3y^4 - 8y)$

$-5y^{10} - 15y^6 + 40y^3$

15)  $(2x+3)(7x-5)$   
 $14x^2 - 10x + 21x - 15$

$14x^2 + 11x - 15$

16)  $(3x-4)(3x-4)$   
 $9x^2 - 12x - 12x + 16$

$9x^2 - 24x + 16$

17)

x	y
-2	$\frac{1}{16} \times 4$
-1	$\frac{1}{4} \times 4$
0	$1 \times 4$
1	$4 \times 4$
2	16

Exponential  
 common ratio of 4  
 $y = 4^x$

18)

x	y
0	5
1	7
2	9
3	11
4	13

Linear  
 common difference  
 of 2  
 $y = 2x + 5$

19)

x	y
-2	-8
-1	-2
0	0
1	-2
2	-8

Quadratic  
 common second difference  
 of -4  
 $y = -2x^2$

20)  $(3-\sqrt{5})(2+\sqrt{5})$   
 $6 + 3\sqrt{5} - 2\sqrt{5} - \sqrt{25}$   
 $6 + \sqrt{5} - 5$

$1 + \sqrt{5}$

21)  $\sqrt{15}(2\sqrt{3} + \sqrt{2})$   
 $2\sqrt{45} + \sqrt{30}$   
 $2\sqrt{9}\sqrt{5} + \sqrt{30}$   
 $2 \cdot 3\sqrt{5} + \sqrt{30}$

$6\sqrt{5} + \sqrt{30}$

22)  $-2\sqrt{20x} \cdot \sqrt{5x^3}$

$-2\sqrt{100x^4}$   
 $-2 \cdot 10x^2$   
 $-20x^2$

23)  $2\sqrt{7} - 8\sqrt{5} - 11\sqrt{7}$

$-9\sqrt{7} - 8\sqrt{5}$