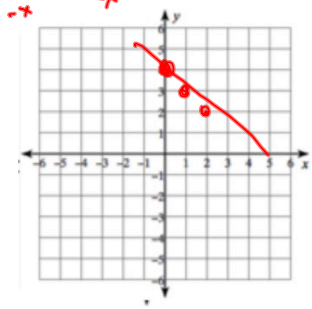
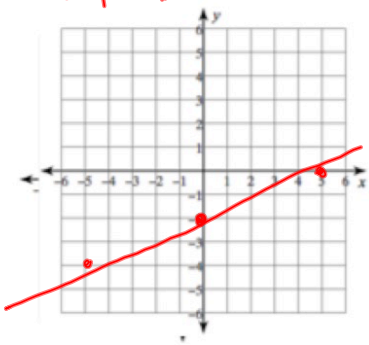
Unit 10 CORRECTIVE ASSIGNMENT: Polynomials

NAME: _____

SKILLZ REVIEW (1 point each)		
Graph.	List all pairs of numbers that multiply to the given number.	Which number pair contains the largest perfect square?
1) x + y = 4 $-x$ $-x$ $y = -x + 4$ 	2) 60 1·60 2·30 3·20 4·15 6·10	3) Use 60 4·15
4) 2x – 5y = 10 $-2x$ $-2x$ $-5y = -2x + 10$ $y = \frac{2}{5}x - 2$ 	5) 54 1·54 2·27 3·18 6·9	6) Use 54 6·9

Directions: Simplify each expression.

1) $(6n^2 - 5) - (3n^2 + 7)$

$3n^2 - 12$

2) $(13x^3 - 8x^2 - x^4) + (10x^4 + 9x^3 + 10x^2)$

$-11x^4 + 22x^3 + 2x^2$

3) $(9g^3 + 5g + 16) + (9g^3 - 12g^2 + g)$

$18g^3 - 12g^2 + 6g + 16$

Directions: Find each product.

4) $(7h-1)(-h-9)$

$-7h^2 - 63h + h + 9$

$\boxed{-7h^2 - 62h + 9}$

5) $(3v+2)(-6v^2+4v-2)$

$-18v^3 + \cancel{12v^2} - 6v - \cancel{12v^2} + 8v - 4$

$\boxed{-18v^3 + 2v - 4}$

6) $(3x-4)^2$

$(3x-4)(3x-4)$

$9x^2 - 12x - 12x + 16$

$\boxed{9x^2 - 24x + 16}$

Factor the greatest common factor out of each expression.

7) $50k^2 - 60k$

$10k(5k-6)$

8) $7n^3 + 28n^5 - 49n^6$

$7n^3(1 + 4n^2 - 7n^3)$

Directions: Factor each completely. (4 points each)

9) $x^2 + 17x + 70$ $\quad \times 70$ $\quad +17$

$(x+10)(x+7)$

10) $9n^2 - 11n + 2$ $\quad \times 18$ $\quad +-11$

$\frac{(9n-9)(9n-2)}{9} = \frac{\cancel{9}(n-1)(9n-2)}{\cancel{9}}$

$\boxed{= (n-1)(9n-2)}$

11) $9a^2 - 16$ $\quad \times 144$ $\quad +0$

$\frac{(9a-12)(9a+12)}{9} = \frac{\cancel{3}(3a-4)\cancel{3}(3a+4)}{\cancel{9}}$

$= \boxed{(3a-4)(3a+4)}$

12) $2h^2 + 5h + 3$ $\quad \times 6$ $\quad +5$

$\frac{(2h+2)(2h+3)}{2} = \frac{\cancel{2}(h+1)(2h+3)}{\cancel{2}}$

$\boxed{= (h+1)(2h+3)}$

13) $r^2 - 8r + 15$ $\times 15$ $+ -8$

$\boxed{(r-5)(r-3)}$

14) $3x^2 - 12x - 63$ $\times -21$ $+ -4$

$3(x^2 - 4x - 21)$

$\boxed{3(x-7)(x+3)}$

15) $-n^2 + 10n - 24$ $\times 24$ $+ -10$

$-1(n^2 - 10n + 24)$

$\boxed{-1(n-6)(n-4)}$

16) $6m^4 - 9m^3 - 6m^2$ $\times -4$ $+ -3$

$3m^2(2m^2 - 3m - 2)$

$\frac{3m^2(2m-4)(2m+1)}{2} = \frac{3m^2(2)(m-2)(2m+1)}{2}$

$\boxed{3m^2(m-2)(2m+1)}$

Directions: Solve each equation by factoring. (4 points each)

17) $-r^2 - 6 = -7r$

$+r^2 \quad +6 \qquad +r^2 \quad +6$ $\times 6$ $+ -7$

$0 = r^2 - 7r + 6$

$0 = (r-6)(r-1)$

$r - 6 = 0$ or $r - 1 = 0$

$r = 6$ $\quad$ $r = 1$

18) $-3x^2 + x - 6 = -4x^2$

$+4x^2 \qquad +4x^2$ $\times -6$ $+ 1$

$x^2 + x - 6 = 0$

$(x+3)(x-2) = 0$

$x + 3 = 0$ OR $x - 2 = 0$

$x = -3$ $\quad$ $x = 2$

19) $-19r = 5r^2 - 4$

$+19r \qquad +19r$

$0 = 5r^2 + 19r - 4$ $\times -20$ $+ 19$

$0 = \frac{(5r+20)(5r-1)}{5}$

$0 = \frac{5(r+4)(5r-1)}{5}$

$0 = r + 4$ or $5r - 1 = 0$

$\boxed{-4 = r}$ $\quad$ $5r = 1$

$\boxed{r = 1/5}$

20) $2m^3 + m^2 - 98m = -3m^2 - 2m$

$+3m^2 + 2m \qquad +3m^2 + 2m$

$2m^3 + 4m^2 - 96m = 0$

$2m(m^2 + 2m - 48) = 0$ $\times -48$ $+ 2$

$2m(m+8)(m-6) = 0$

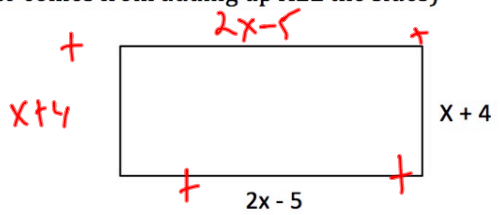
$2m = 0$ OR $m + 8 = 0$ OR $m - 6 = 0$

$m = 0$ $\quad$ $m = -8$ $\quad$ $m = 6$

Unit 10 Test APPLICATIONS

1) Find the perimeter of the rectangle at the right. (Remember perimeter comes from adding up ALL the sides)

$6x - 2$



2) Find the area of the rectangle at the right. Remember the area of a rectangle is A = L x W.

$(2x-5)(x+4)$

$2x^2 + 8x - 5x - 20$

$2x^2 + 3x - 20$

3) Suppose you know that the area of a rectangle is 40 square inches. The area can be modeled using the expression $n^2 - 6n$. Find the dimensions of the rectangle.

$40 = n^2 - 6n$

$0 = n^2 - 6n - 40$ $\quad \times -40$ $\quad + -6$

$0 = (n-10)(n+4)$

$n - 10 = 0$ or $n + 4 = 0$

$n = 10$ or $n \neq -4$

so $\boxed{10 \times 4} = 40$

$10 \cdot x = 40$

$x = 4$

A projectile is an object that is propelled into the air, but has no power to keep itself in the air, like a thrown ball. The vertical motion model can describe the height of a projectile:

$s(t) = -16t^2 + vt + h$, where **s(t)** represents the height of the projectile, ***t*** represents the time in seconds the object has been in the air, ***v*** is the initial velocity (in feet per second) and ***h*** is the initial height(in feet).

4) Your friends stand on a hill that is 80 feet off the ground and punts a football with an initial velocity of 64 feet per second.

a) Write an equation to model this situation.

$\boxed{s(t) = -16t^2 + 64t + 80}$

$= -16(t^2 - 4t - 5) = -16(t - 5)(t + 1)$

b) How long till the football hits the ground?

$t - 5 = 0$ $\quad t + 1 = 0$

$\boxed{t = 5}$ OR $t \neq -1$

seconds