Name: Key Date:
Algebra 1 Band:

# Unit 7: Polynomials & Factoring PBA Practice

**What is the leading coefficient and degree of each polynomial? (You may want to rewrite each polynomial in standard form)**

**1.** $4r + 3 - 9r^2 + 7r$

$-9r^2 + 11r + 3$

leading coefficient $= -9$

degree $= 2$

**2.** $3 + b^3 + b^2$

$b^3 + b^2 + 3$

leading coefficient $= 1$

degree $= 3$

**3.** $3 + 8t^2$

$8t^2 + 3$

leading coefficient $= 8$

degree $= 2$

**Simplify.**

**4.** $(2v^3 - v + 8) + (-v^3 + v - 3)$

$v^3 + 5$

**5.** $(4h^3 + 3h + 1) - (-5h^3 + 6h - 2)$

$4h^3 + 3h + 1 + 5h^3 - 6h + 2$

$\boxed{9h^3 - 3h + 3}$

**6.** $(2x - 7)(3x^2 + x - 5)$

$6x^3 + 2x^2 - 10x - 21x^2 - 7x + 35$

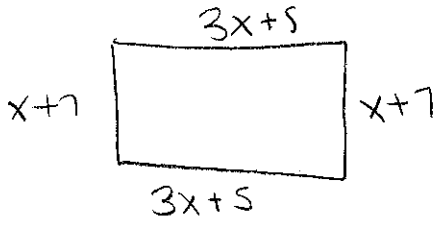
$\boxed{6x^3 - 19x^2 - 17x + 35}$

**7.** $(3r - 2)^2$ $= (3r - 2)(3r - 2)$

$9r^2 - 6r - 6r + 4$

$\boxed{9r^2 - 12r + 4}$

**8.** A rectangle has dimensions $3x + 5$ and $x + 7$. What is the perimeter and area of the rectangle?




perimeter $= 3x + 5 + 3x + 5 + x + 7 + x + 7$

$= \boxed{8x + 24}$

area $= (3x + 5)(x + 7)$

$= 3x^2 + 21x + 5x + 35$

$= \boxed{3x^2 + 26x + 35}$

**Factor.**

**9.** $g^2 - 5g - 14$

| Factors of −14 | Sum to −5 |
|---|---|
| −7, 2 | −5 |

$(g-7)(g+2)$

**10.** $2n^2 + 3n - 2$

| Factors of −4 | Sum to 3 |
|---|---|
| 4, −1 | 3 |

$2n^2+4n-n-2$

$2n(n+2)-1(n+2)$

$(2n-1)(n+2)$

**11.** $p^2 + 8p + 12$

| Factors of 12 | Sum to 8 |
|---|---|
| 6, 2 | 8 |

$(p+6)(p+2)$

**12.** $r^2 + 6r - 40$

| Factors of −40 | Sum to 6 |
|---|---|
| 10, −4 | 6 |

$(r+10)(r-4)$

**13.** $d^2 - 18d + 45$

| Factors of 45 | Sum to −18 |
|---|---|
| −15, −3 | −18 |

$(d-15)(d-3)$

**14.** $10v^2 + 11v - 8$

| Factors of −80 | Sum to 11 |
|---|---|
| 16, −5 | 11 |

$10v^2+16v-5v-8$

$2v(5v+8)-1(5v+8)$

$(2v-1)(5v+8)$

**Factor completely.**

**15.** $32v^2 - 8$

$8(4v^2-1)$

$8(2v-1)(2v+1)$

**16.** $75x^2 - 108$

$3(25x^2-36)$

$3(5x-6)(5x+6)$

**17.** $18z^3 - 32z$

$2z(9z^2-16)$

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

**Factor by grouping.**

**18.** $20r^3 + 8r^2 + 15r + 6$

$4r^2(5r+2)+3(5r+2)$

$(4r^2+3)(5r+2)$

**19.** $6d^3 + 3d^2 - 10d - 5$

$3d^2(2d+1)-5(2d+1)$

$(3d^2-5)(2d+1)$