D 1. $a^m a^n$
E 2. a^{-n}
G 3. $(ab)^2$
B 4. $\frac{a^m}{a^n}$
F 5. $(a-b)^2$
H 6. $(a^m)^n$
L 7. $\left(\frac{a}{b}\right)^2$
C 8. $(a+b)^2$
I 9. a^0
A 10. $(a-b)(a+b)$

~~A.~~ a^2-b^2
~~B.~~ a^{m-n}
~~C.~~ $a^2+2ab+b^2$
~~D.~~ a^{m+n}
~~E.~~ $\frac{1}{a^n}$
~~F.~~ $a^2-2ab+b^2$
~~G.~~ a^2b^2
H. a^{mn}
~~I.~~ 1
J. a^2+b^2
K. a^2+ab+b^2
~~L.~~ $\frac{a^2}{b^2}$
M. a^{n-m}
N. a^2-ab+b^2
O. 0

11. Write the interval in set-builder notation:
$[-2,5)$ $\{x|-2\le x<5\}$

12. Write the set in interval notation:
$\{x|x>-4\}$ $(-4,\infty)$

15. A system of equations with a single solution is called _____
A pair of lines intersecting at a single point is an example of this.
independent

16. A system of equations with no solution is called _____
A pair of parallel lines (which never intersect) is an example of this.
inconsistent

17. A system of equations with infinitely many solutions is called ___
A pair of equations representing the same line is an example of this.
dependent

13. State the equation of the line passing through the point $(-4, 9)$ whose slope is undefined.
$x=-4$

14. State the distributive property of real numbers.
$a(b+c)=ab+ac$

5.6 Special Factoring

$a^2-b^2=(a+b)(a-b)$

$a^2+2ab+b^2=(a+b)(a+b)=(a+b)^2$

$a^2-2ab+b^2=(a-b)(a-b)=(a-b)^2$

$a^3+b^3=(a+b)(a^2-ab+b^2)$

$a^3-b^3=(a-b)(a^2+ab+b^2)$

5.6

12. a^2b^2-25

$a^2-b^2=(a-b)(a+b)$

$(ab)^2-5^2$

$(ab-5)(ab+5)$

42. $64a^3+27$

$a^3+b^3=(a+b)(a^2-ab+b^2)$

$(4a)^3+3^3$

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

16. $4x^2y^2+12xy+9$

$(a+b)^2=(a+b)(a+b)$

$=a^2+2ab+b^2$

$(2xy)^2+2(2xy)(3)+3^2$

$(2xy+3)^2=(2xy+3)(2xy+3)$

22. $b^2-18b+81$

$(a-b)^2=a^2-2ab+b^2$

$b^2-2(b)(9)+9^2$

$(b-9)^2=(b-9)(b-9)$

48. $1-125b^3$

$a^3-b^3=(a-b)(a^2+ab+b^2)$

$1^3-(5b)^3$

$(1-5b)(1+5b+25b^2)$

54. $27x^3-8y^3$

$(3x)^3-(2y)^3$

$(3x-2y)(9x^2+6xy+4y^2)$

58. $a^3+(a+b)^3$

$x^3+y^3=(x+y)(x^2-xy+y^2)$

$(a+b)^2=(a+b)(a+b)=a^2+ab+ab+b^2$

$(a+a+b)(a^2-a(a+b)+(a+b)^2)$

$(2a+b)(a^2-a^2-ab+a^2+2ab+b^2)$

$(2a+b)(a^2+ab+b^2)$

60. $x^{3n}+y^{3n}$

$(a^m)^3 = a^{3m}$

$a^3+b^3=(a+b)(a^2-ab+b^2)$

$(x^n)^3+(y^n)^3$

$$(x^n+y^n)(x^{2n}-x^ny^n+y^{2n})$$

86. $3x^4-81x$

$3x(x^3-27)$

$$3x(x-3)(x^2+3x+9)$$

102. $4x^3+8x^2-9x-18$

$4x^2(x+2)-9(x+2)$

$(x+2)(4x^2-9)$

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

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

108. $8x^4 - 40x^3 + 50x^2$

$2x^2(4x^2 - 20x + 25)$

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

$(a-b)^2 = a^2 - 2ab + b^2$

$\boxed{2x^2(2x-5)^2}$

$2x^2(2x-5)(2x-5)$

120. $24a^2b^2 - 14ab^3 - 90b^4$

$2b^2(12a^2 - 7ab - 45b^2)$

$12(-45)$

$3 \cdot 4 \quad 5 \cdot 9 \quad (-1)$

$3 \cdot 3$

$3 \cdot 3 \cdot 3 \cdot 4 \cdot 5 \cdot (-1)$

$2b^2(12a^2 - 27ab + 20ab - 45b^2)$

$2b^2[3a(4a-9b) + 5b(4a-9b)]$

$\boxed{2b^2(4a-9b)(3a+5b)}$

126. $4x^4 - x^2 - 4x^2y^2 + y^2$

$x^2(4x^2-1) - y^2(4x^2-1)$

$(4x^2-1)(x^2-y^2)$

$(2x)^2 - 1^2$

$\boxed{(2x-1)(2x+1)(x-y)(x+y)}$

128. $x^6y^3 + x^3 - x^3y^3 - 1$

$x^3(x^3y^3+1) - 1(x^3y^3+1)$

$(x^3y^3+1)(x^3-1)$

$((xy)^3+1^3)(x^3-1^3)$

$\boxed{(xy+1)(x^2y^2-xy+1)(x-1)(x^2+x+1)}$

80. $3x^4 + 20x^2 + 32$

$3(32)$

$3 \cdot 8 \cdot 4$

$3x^4 + 12x^2 + 8x^2 + 32$

$3x^2(x^2+4) + 8(x^2+4)$

$\boxed{(x^2+4)(3x^2+8)}$

132. $3b^{n+2} + 4b^{n+1} - 4b^n$

$b^n(3b^2 + 4b - 4)$

$3(-4) = -12 = 6(-2)$

$b^n(3b^2 + 6b - 2b - 4)$

$b^n[3b(b+2) - 2(b+2)]$

$b^n(b+2)(3b-2)$

5.6

#3-131 odd