

## Multiplying Polynomials

Find each product.

1)  $3n(4n - 1)$

2)  $-4(2n - 3)$

3)  $-4m(m - 2)$

4)  $(2m - 3)(4m + 1)$

5)  $(5n - 1)(2n + 1)$

6)  $(2m - 1)(4m + 5)$

7)  $(-a - 2)(-4a + 6)$

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

9)  $(8x + 2)(7x + 4)$

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

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

14.  $x^2y^2(x^2 + 2x + 1)$

15.  $4x^2y(-x^2 - x + 10)$

16.  $5x^2y(x^2 + 2xy + 7)$

17.  $3xy(2x^2 + 2xy + y^2)$

18.  $4xy^2(3x^2 - 5xy + 6y^2)$

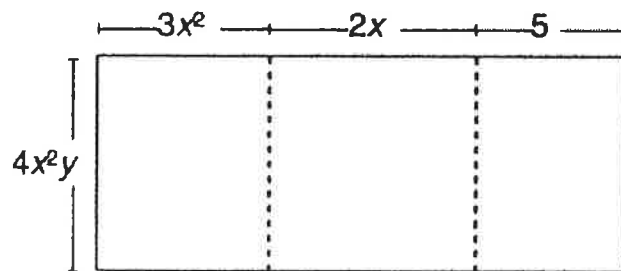
19.  $3x^2y^2z(7x^2 + 2y + z + 4w)$

20.  $-2xyz(3x^2 + 2y^2 + z^2 - 4w^2)$

### III. Challenge Problems

21. What is the area of a rectangle with length  $3xy$  inches and width  $(3x^2 + 6x + 10)$  inches? Write your answer as an expression in terms of  $x$  and  $y$ .

22. The diagram shows a soccer field divided into three sections. The measurements shown are in feet. Find the area of the soccer field.



### 23. Correct the Error

There is an error in the student work shown below:

Question: Simplify  $x^2(3x^2 + 5y + 6)$ .

Solution:

$$\begin{aligned} & x^2(3x^2 + 5y + 6) \\ &= x^2 \cdot (3x^2) + x^2 \cdot 5y + x^2 \cdot 6 \\ &= 3x^4 + 5x^3 + 6x^2 \end{aligned}$$

What is the error? Explain how to solve the problem.

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