

Review 7.1 - 7.3

p. 441

In Exercises 1-3, find the degree of the monomial.

1. $-3.25n^8$

degree = 8

2. $\frac{1}{5}x^4yz^2$

degree = 7

3. uv^3w^9

degree = 13

In Exercises 4 and 5, write the polynomial in standard form. Identify the degree and leading coefficient of the polynomial. Then classify the polynomial by the number of terms.

4. $3t - 8t^2 + 10t^5$ trinomial

$10t^5 - 8t^2 + 3t$

Degree = 5 Leading coeff. = 10

5. $\sqrt{14}p^5$ $\sqrt{14}p^5$

Degree = 5

Leading coefficient = $\sqrt{14}$

Monomial

In Exercises 6 and 7, find the sum.

6. $(-2t^2 - 7t + 5) + (-8t^2 + 4t - 3)$

$$\begin{array}{r} -8t^2 + 4t - 3 \\ + -2t^2 - 7t + 5 \\ \hline \end{array}$$

$-10t^2 - 3t + 2$

7. $(3q^2 - 7q - 6) + (2q^2 - 5q^3 + 8q)$

$$\begin{array}{r} 0q^3 + 3q^2 - 7q - 6 \\ + -5q^3 + 2q^2 + 8q + 0 \\ \hline \end{array}$$

$-5q^3 + 5q^2 + q - 6$

In Exercises 8 and 9, find the difference.

8. $(t^3 - 5t^2 - 7) - (t - 11)$

$(t^3 - 5t^2 - 7) + (-t + 11)$

$$\begin{array}{r} t^3 - 5t^2 + 0t - 7 \\ + 0t^3 + 0t^2 + -t + 11 \\ \hline \end{array}$$

$t^3 - 5t^2 - t + 4$

9. $(x^4 - x^2 + 9) - (13 - 6x^2 + 8x)$

$$\begin{array}{r} x^4 + 0x^3 - x^2 + 0x + 9 \\ + 0x^4 + 0x^3 + 6x^2 - 8x - 13 \\ \hline \end{array}$$

$x^4 + 0x^3 + 5x^2 - 8x - 4$

$x^4 + 5x^2 - 8x - 4$

10. The number of economy-size cars rented in w weeks is represented by $152 + 3w$. The number of full-size cars rented in w weeks is represented by $99 + 2w$. Write a polynomial that represents how many more economy cars are rented in w weeks than full-size cars.

$(152 + 3w) - (99 + 2w)$

$(3w + 152) + (-2w - 99)$

$$\begin{array}{r} 3w + 152 \\ + -2w - 99 \\ \hline \end{array}$$

$w + 53$

$w + 53$ is the polynomial that represents how many more economy cars are rented in w weeks than full-size cars.

In Exercises 11 and 12, use the Distributive Property to find the product.

$$\begin{aligned}
 11. & (p-5)(p-8) \\
 & p(p-8) - 5(p-8) \\
 & p^2 - 8p - 5p + 40 \\
 & \boxed{p^2 - 13p + 40}
 \end{aligned}$$

$$\begin{aligned}
 12. & (5t+1)(t-2) \\
 & 5t(t-2) + 1(t-2) \\
 & 5t^2 - 10t + t - 2 \\
 & \boxed{5t^2 - 9t - 2}
 \end{aligned}$$

In Exercises 13 and 14, use a table to find the product.

$$\begin{array}{c|cc}
 & 2p & 4 \\
 \hline
 5p & 10p^2 & 20p \\
 \hline
 -1 & -2p & -4 \\
 \hline
 \end{array} = 10p^2 + 18p - 4$$

$$\begin{array}{c|cc}
 & 3r & -4 \\
 \hline
 7r & 21r^2 & -28r \\
 \hline
 -2 & -6r & 8 \\
 \hline
 \end{array} = 21r^2 - 34r + 8$$

In Exercises 15 - 18, use the FOIL Method to find the product.

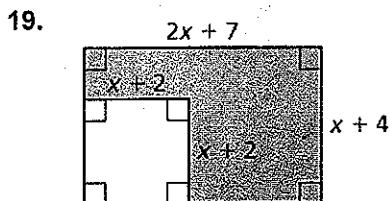
$$\begin{aligned}
 15. & (z+9)(z-8) \\
 & = z^2 - 8z + 9z - 72 \\
 & = \boxed{z^2 + z - 72}
 \end{aligned}$$

$$\begin{aligned}
 16. & \left(m - \frac{2}{5}\right)\left(m + \frac{4}{5}\right) \\
 & = m^2 + \frac{4}{5}m - \frac{2}{5}m - \frac{8}{25} \\
 & = \boxed{m^2 - \frac{2}{5}m - \frac{8}{25}}
 \end{aligned}$$

$$\begin{aligned}
 17. & (4v-3)(v+7) \\
 & = 4v^2 + 28v - 3v - 21 \\
 & = \boxed{4v^2 + 25v - 21}
 \end{aligned}$$

$$\begin{aligned}
 18. & (p+4)(p^2+7p) \\
 & p^3 + 7p^2 + 4p^2 + 28p \\
 & \boxed{p^3 + 11p^2 + 28p}
 \end{aligned}$$

In Exercise 19, write a polynomial that represents the area of the shaded region.



Area of large - Area of small = Area of shaded

$$\begin{aligned}
 \text{Area of large: } & (2x+7)(x+4) = 2x^2 + 8x + 7x + 28 \\
 & = 2x^2 + 15x + 28
 \end{aligned}$$

$$\begin{aligned}
 \text{Area of small: } & (x+2)^2 = x^2 + 2(2x) + 2^2 \\
 & = x^2 + 4x + 4
 \end{aligned}$$

$$\begin{aligned}
 & 2x^2 + 15x + 28 \\
 - & x^2 + 4x + 4 \\
 \hline
 & x^2 + 11x + 24
 \end{aligned}$$

$$\boxed{x^2 + 11x + 24 = \text{Area of shaded region}}$$

In Exercises 20, find the product.

20. $(x + 10)(3x^2 + 5x - 2)$.

	$3x^2$	$5x$	-2	
x	$3x^3$	$5x^2$	$-2x$	= $3x^3 + 35x^2 + 48x - 20$
10	$30x^2$	$50x$	-20	

In Exercises 21-25, find the product.

21. $(x + 7)^2 = x^2 + 2(7x) + 7^2$

= $x^2 + 14x + 49$

22. $(2w - 3)^2$

= $(2w)^2 + 2(-6w) + (-3)^2$

= $4w^2 - 12w + 9$

23. $(n + 4)(n - 4) = n^2 - (4)^2$

= $n^2 - 16$

24. $(5x + 2)(5x - 2)$

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

= $25x^2 - 4$

25. $(x + 2y)(x - 2y) = x^2 - (2y)^2$

= $x^2 - 4y^2$