

Chapter 9 Review

Write each polynomial in standard form. Then name each expression based on its degree (linear, quadratic, cubic, or constant) and number of terms (monomial, binomial, trinomial).

1. $2x + 5x^2 + 1$ Quadratic
 $5x^2 + 2x + 1$ Trinomial

2. $y^2 - 4y^3 - 7y^2$ Cubic
 $-4y^3 - 6y^2$ Binomial

Add to standard form.

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

Quadratic Trinomial

Subtract to standard form.

4. $(3x^2 + 4x - 10) - (2x + 7 + 4x^2)$
 $7x^2 + 2x - 17$

Quadratic Trinomial

Multiply to standard form.

5. $-7x(3 - x + 6x^3)$
 $-21x + 7x^2 - 42x^4$
 $-42x^4 + 7x^2 - 21x$

6. $(y + 4)(y - 4)$
 $y^2 - 4y + 4y - 16$
 $y^2 - 16$

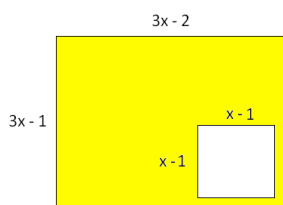
7. $(a + 3)^2$
 $(a + 3)(a + 3)$
 $a^2 + 3a + 3a + 9 = a^2 + 6a + 9$

8. $(2y - 8)(y - 4)$
 $2y^2 - 8y - 8y + 32$
 $2y^2 - 16y + 32$

9. $(x - 1)(x^2 + 6x + 4)$
 $x^3 + 6x^2 + 4x - 1x^2 - 6x - 4$
 $x^3 + 5x^2 - 2x - 4$

	x^2	$+6x$	$+4$
x	x^3	$+6x^2$	$+4x$
-1	$-x^2$	$-6x$	-4

10. Find the area of the shaded region.



Small Rect. Area

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

Big Rectangle Area

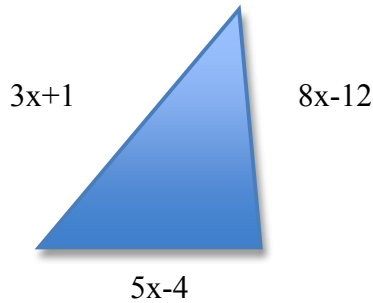
$(3x - 1)(3x - 2)$
 $9x^2 - 6x - 3x + 2$
 $9x^2 - 9x + 2$

Area of Shaded Region

Big Area - Small Area
 $(9x^2 - 9x + 2) - (x^2 - 2x + 1)$
 $8x^2 - 7x + 1$

11. Find the perimeter in terms of x .

Add all sides



$$\begin{array}{r} 3x+1 \\ + 8x-12 \\ + 5x-4 \\ \hline 16x-15 \end{array}$$

Factor each expression **COMPLETELY**. (Choose at least 5.)

Do All!

12. $12n^2 + 4n - 1$

$$(6n-1)(2n+1)$$

Handwritten work shows the factoring process with red annotations: $-3n$ and $+4n$ are written above the terms, and a red bracket connects $6n$ and $2n$ in the second factor.

13. $y^2 + 18y + 81$

$$(y+9)(y+9)$$

or $(y+9)^2$

14. $x^2 - 8x - 20$

$$(x-10)(x+2)$$

Handwritten work shows the factoring process with red annotations: $-10x$ and $+2x$ are written above the terms, and a red bracket connects $2x$ and $-8x$ in the second factor.

15. $y^2 - 144$

$$(y+12)(y-12)$$

Handwritten work shows the factoring process with red annotations: $+12y$ and $-12y$ are written above the terms, and a red bracket connects $12y$ and $-12y$ in the second factor.

16. $2x^2 - 17x + 15$

$$(2x-15)(x-1)$$

Handwritten work shows the factoring process with red annotations: $-15x$ and $-2x$ are written above the terms, and a red bracket connects $-17x$ and $-2x$ in the second factor.

17. $9x^2 - 64$

$$(3x+8)(3x-8)$$

Handwritten work shows the factoring process with red annotations: $+24x$ and $-24x$ are written above the terms, and a red bracket connects $-24x$ and $0x$ in the second factor.

18. $6y^2 - 12y^3 + 36y^4$

Rewrite

$$36y^4 - 12y^3 + 6y^2$$

$$6y^2(6y^2 - 2y + 1)$$

Handwritten work shows the factoring process with red annotations: $3y$ and 1 are written above the terms, and a red bracket connects $3y$ and 1 in the second factor.

20. $4x^2 + 16x - 48$

$$4(x^2 + 4x - 12)$$

$$4(x+6)(x-2)$$

Handwritten work shows the factoring process with red annotations: $+6x$ and $-2x$ are written above the terms, and a red bracket connects $+4x$ and $-2x$ in the second factor.

GCF: 19. $3x^3 - 75x$

$$3x(x^2 - 25)$$

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

21. $6x + 30$

$$6(x+5)$$