

Algebra 1 - Polynomials Test (Ch 8)**What is the sum or difference?**

- _____ 1. $2x^8 + 6x^8$
a. $12x^8$ b. $-4x^8$ c. $8x^{16}$ d. $8x^8$
- _____ 2. $2x^4 - 6x^4$
a. $-4x^8$ b. $8x^4$ c. $-4x^4$ d. $-12x^4$
- _____ 3. $5y^4 + 3y^4$
a. $2y^4$ b. $15y^4$ c. $8y^4$ d. $8y^8$
- _____ 4. A biologist studied the populations of white-sided jackrabbits and black-tailed jackrabbits over a 5-year period. The biologist modeled the populations, in thousands, with the following polynomials where x is time, in years.

White-sided jackrabbits: $7.4x^2 - 2.1x + 7.7$ Black-tailed jackrabbits: $7.5x^2 + 5.4x + 3.7$

What polynomial models the total number of white-sided and black-tailed jackrabbits?

- a. $14.9x^2 + 3.3x + 11.4$ c. $-14.9x^2 + 3.3x - 11.4$
b. $14.9x^2 - 3.3x - 11.4$ d. $14.9x^2 - 3.3x + 11.4$

Simplify the sum.

- _____ 5. $(7u^3 + 3u^2 + 5) + (7u^3 - 4u + 3)$
a. $8 - 4u + 3u^2 + 14u^3$ c. $0u^3 + 3u^2 - 4u + 8$
b. $0u^3 - 4u^2 + 3u - 8$ d. $14u^3 + 3u^2 - 4u + 8$

Simplify the difference.

- _____ 6. $(-7x - 5x^4 + 5) - (-7x^4 - 5 - 9x)$
a. $-14x^4 + 10x + 10$ c. $2x^4 + 2x + 8$
b. $2x^4 + 2x + 10$ d. $-14x^4 - 10x + 10$
- _____ 7. $(7w^2 - 6w - 6) - (4w^2 + 4w - 2)$
a. $11w^2 + 10w + 4$ c. $3w^2 - 2w - 8$
b. $11w^2 - 2w - 8$ d. $3w^2 - 10w - 4$

Simplify the product.

- _____ 8. $2n(n^2 + 3n + 4)$
a. $2n^3 + 3n + 4$ c. $n^2 + 5n + 4$
b. $2n^3 + 6n^2 + 8n$ d. $2n^3 + 6n + 8$

- _____ 9. $5a^2(3a^4 + 3b + 2)$
a. $8a^6 + 15a^2b + 5a^2$
b. $15a^6 + 15a^2b + 10a^2$
c. $15a^8 + 3b + 10a^2$
d. $8a^4 + 8ab + 5a^2$
- _____ 10. $8p(-3p^2 + 6p - 2)$
a. $-5p^3 + 14p^2 - 6p$
b. $48p^2 - 16p - 24p^3$
c. $14p^2 - 6p - 5p^3$
d. $-24p^3 + 48p^2 - 16p$

Factor the polynomial.

- _____ 11. $14w^7 + 8w^4$
a. $w^4(14w^3 + 8)$
b. $2(7w^7 + 4w^4)$
c. $2w^3(7w^4 + 4w)$
d. $2w^4(7w^3 + 4)$
- _____ 12. $54c^3d^4 + 9c^4d^2$
a. $9c^4d^2(6d^2 + 1)$
b. $9c^3d^2(6d^2 + c)$
c. $9c^3d^2(d^2 + 6c)$
d. $9c^4d^2(d^2 + 6)$

Simplify the product using the distributive property or FOIL.

- _____ 13. $(4h + 7)(2h + 3)$
a. $8h^2 + 2h - 21$
b. $8h^2 - 26h + 21$
c. $8h^2 - 2h - 21$
d. $8h^2 + 26h + 21$
- _____ 14. $(-5h - 5)(4h - 2)$
a. $-20h^2 - 30h - 10$
b. $-20h^2 + 30h - 10$
c. $-20h^2 - 10h + 10$
d. $-20h^2 + 10h + 10$
- _____ 15. $(3x - 7)(3x - 5)$
a. $9x^2 - 36x - 35$
b. $9x^2 + 36x + 35$
c. $9x^2 - 36x + 35$
d. $9x^2 + 6x + 35$
- _____ 16. $(j + 7)(j - 7)$
a. $j^2 - 14j - 49$
b. $j^2 + 14j - 49$
c. $j^2 - 49$
d. $j^2 + 14j - 49$

What is the factored form of the following expressions?

- _____ 17. $w^2 + 18w + 77$
a. $(w - 7)(w - 11)$
b. $(w + 1)(w + 77)$
c. $(w + 7)(w + 11)$
d. $(w - 7)(w + 11)$
- _____ 18. $d^2 + 10d + 21$
a. $(d + 7)(d - 3)$
b. $(d - 7)(d + 3)$
c. $(d - 7)(d - 3)$
d. $(d + 7)(d + 3)$

- _____ 19. $d^2 - 9d + 14$
a. $(d+2)(d-7)$ c. $(d+2)(d+7)$
b. $(d-2)(d-7)$ d. $(d-2)(d+7)$
- _____ 20. $x^2 - x - 42$
a. $(x+7)(x-6)$ c. $(x-7)(x-6)$
b. $(x-7)(x+6)$ d. $(x+7)(x+6)$
- _____ 21. The area of a rectangular garden is given by the trinomial $x^2 + 2x - 80$. What are the possible dimensions of the rectangle? Use factoring.
a. $x - 10$ and $x - 8$ c. $x - 10$ and $x + 8$
b. $x + 10$ and $x + 8$ d. $x + 10$ and $x - 8$

What is the factored form of the expression?

- _____ 22. $6x^2 + 5x + 1$
a. $(3x+1)(2x+1)$ c. $(3x+1)(2x-1)$
b. $(3x-1)(2x-1)$ d. $(3x-1)(2x+1)$
- _____ 23. $12d^2 + 4d - 1$
a. $(6d-1)(2d-1)$ c. $(6d+1)(2d+1)$
b. $(6d+1)(2d-1)$ d. $(6d-1)(2d+1)$
- _____ 24. $4g^2 + 9g - 9$
a. $(4g-3)(g-3)$ c. $(4g+3)(g+3)$
b. $(4g-3)(g+3)$ d. $(4g+3)(g-3)$
- _____ 25. The area of a rectangular pool is given by the trinomial $9y^2 + 6y - 80$. What are the possible dimensions of the pool? Use factoring.
a. $3y - 8$ and $3y + 10$ c. $-3y - 8$ and $-3y - 10$
b. $3y + 8$ and $3y - 10$ d. $3y - 3$ and $3y + 10$

What is the factored form of the expression?

- _____ 26. $r^2 - 49$
a. $(r+7)(r+7)$ c. $(r-7)(r-7)$
b. $(r-7)(r+9)$ d. $(r-7)(r+7)$
- _____ 27. $s^2 - 25$
a. $(s-5)(s-5)$ c. $(s-5)(s+5)$
b. $(s-5)(s+7)$ d. $(s+5)(s+5)$

What is the factored form of the expression?

- _____ 28. $3x^3 + 3x^2 + x + 1$
a. $x(3x^2 + x + 1)$ c. $(x+3)(3x^2 - 1)$
b. $(x+1)(3x^2 + 1)$ d. $3x^2(x+1)$

Name: _____

ID: B

29. $20g^3 + 24g^2 - 15g - 18$
a. $(4g^2 - 6)(5g + 3)$
b. $(4g^2 + 3)(5g - 6)$

c. $(4g^2 + 6)(5g - 3)$
d. $(4g^2 - 3)(5g + 6)$

Factor the common factor out of each expression.

30) $-45n^2 - 9$

31) $-30b^5 + 48b^2 + 6b$

Factor by grouping.

32) $3x^3 - 9x^2 + 2x - 6$

33) $3x^3 - 2x^2 + 9x - 6$

Factor by difference of two squares.

34) $k^2 - 9$

35) $9a^2 - 4$

Factor each completely.

36) $n^2 + 7n + 6$

37) $r^2 + 8r + 15$

38) $2k^2 - 11k + 15$

39) $3n^2 - 5n + 2$

40) $4x^2 + 5x + 1$

Bonus

*

41) $12r^2 + 80r - 28$

* Bonus

42) $9p^2 + 87p + 54$

Algebra 1 - Polynomials Test (Ch 8)
Answer Section

1. D
2. C
3. C
4. A
5. D
6. B
7. D
8. B
9. B
10. D
11. D
12. B
13. D
14. C
15. C
16. C
17. C
18. D
19. B
20. B
21. D
22. A
23. D
24. B
25. A
26. D
27. C
28. B
29. D

Answers to Assignment (ID: 1)

30) $-9(5n^2 + 1)$

34) $(k + 3)(k - 3)$

38) $(2k - 5)(k - 3)$

42) $3(3p + 2)(p + 9)$

31) $6b(-5b^4 + 8b + 1)$

35) $(3a + 2)(3a - 2)$

39) $(3n - 2)(n - 1)$

32) $(3x^2 + 2)(x - 3)$

36) $(n + 6)(n + 1)$

40) $(x + 1)(4x + 1)$

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

37) $(r + 3)(r + 5)$

41) $4(3r - 1)(r + 7)$