

Use Algebraic Notation AND Show All of Your Work on Your Own Paper

Multiply.

[5 pts]

1. $-9a^5(-3a^6 - 2a^4 + 8a^2)$

[6 pts]

2. $-4.6m^2n(1.3m^4n^2 - 2.6m^3n^3 + 5.9n^4)$

[6 pts]

3. $(5x + 7)(3y - 8)$

[8 pts]

4. $\left(5m - \frac{2}{5}n\right)^2$

[10 pts]

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

[10 pts]

6. $(p - 3)^3$

Divide.

[7 pts]

7.
$$\frac{-8h^6 + 36h^4 - 4h^2 - 26h + 7}{-4h^2}$$

Show long division.

[15 pts]

8.
$$\frac{9w^2 + 6w + 10}{3w - 2}$$

[18 pts]

9.
$$\frac{18 - 11t^2 + 9t + 12t^3}{4t + 3}$$

[18 pts]

10.
$$\frac{y^3 - 1}{y - 1}$$

Factor completely.

[6 pts]

11. $19p^2y - 38p^2y^3$

[6 pts]

12. $3r(5x - 1) + 7(5x - 1)$

[8 pts]

13. $5m^2 + 15mp - 2mp - 6p^2$

[8 pts]

14. $q^2 - q - 42$

[10 pts]

15. $3t^3 + 27t^2 + 24t$

[11 pts]

16. $zy^3 + 3y^2z^2 - 54yz^3$

[12 pts]

17. $(3m - n)k^2 - 13(3m - n)k + 40(3m - n)$

[10 pts]

18. $4r^2 + 3r - 10$

[10 pts]

19. $10x^2 + 11x - 6$

[11 pts]

20. $12k^3q^4 - 4k^2q^5 - kq^6$

[12 pts]

21. $-18k^3 - 48k^2 + 66k$

[11 pts]

22. $32a^2 - 8$

[9 pts]

23. $81w^2 + 16$

[12 pts]

24. $y^4 - 16$

[11 pts]

25. $m^2 + \frac{2}{3}m + \frac{1}{9}$

[12 pts]

26. $-18x^2 - 48xy - 32y^2$

[10 pts]

27. $125t^3 + 8s^3$

[11 pts]

28. $729a^6 + 343k^3$

Solve each equation. State your solution as a solution set.

[18, 3 pts]

29. $4b(2b + 3) = 36$

[22, 3 pts]

30. $2k(k + 3) = (3k + 1)(k + 3)$

[21, 4 pts]

31. $y^3 = 6y^2 - 8y$

[30 pts]

32. A plastic box that holds a standard audiocassette has a length 4 centimeters longer than its width. The area of the rectangular top of the box is 77 square centimeters. Find the length and width of the box. (Draw a picture, define a variable, create an equation, solve using algebra, and answer in a sentence.)

[33 pts]

33. Two cars leave an intersection. One travels north; the other travels east. When the car traveling north had gone 24 miles, the distance between the cars was four more than three times the distance traveled by the car heading east. Find the distance between the cars at that time. (Draw a picture, define a variable, create an equation, solve using algebra, and answer in a sentence.)

[33 pts]

34. An object is propelled from a height of 48 feet with an initial velocity of 32 feet per second, its height h is given by the equation $h = -16t^2 + 32t + 48$. After how many seconds is the height 60 feet? (Draw a picture, define a variable, create an equation, solve using algebra, and answer in a sentence.)