

12/1/20

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Test: 5

$$1. y \cdot y^5 \cdot y^8 = y^{(1+5+8)} \Rightarrow y^{14}$$

$$2. (y^6)^3 = y^{6 \times 3} \Rightarrow y^{18}$$

$$3. (-4x)^2 = (-4)^2 \cdot (x)^2 \Rightarrow 16x^2$$

$$4. (5a^2b^4)^3 = 5^3 \times a^{2 \times 3} \times b^{4 \times 3} \Rightarrow 125a^6b^{12}$$

$$5. \frac{y^{10}}{y^2} = \frac{y^{10-2}}{y^0} \Rightarrow y^8$$

$$6. \frac{x^3}{x^6} = \frac{x^{3-3}}{x^3} \Rightarrow \frac{1}{x^3}$$

$$7. \frac{a^5}{a^5} \Rightarrow 1$$

$$8. (-3x^3y)(6x^2y) = -18x^5y^2$$

$$9. (8x^4y^2)^2 (9x^3y^0)^0 = (8^2 x^{4 \times 2} y^{2 \times 2}) \cdot 1 \Rightarrow 64x^8y^4$$

$$10. y^{-6} = \frac{1}{y^6}$$

$$11. (x^{-3})^{10} = x^{-30} \Rightarrow \frac{1}{x^{30}}$$

$$12. (x^{-4})^{-2} = x^{-4 \times -2} \Rightarrow x^8$$

$$13. \frac{y^6}{y^7} = \frac{y^6}{y^6 \cdot y^1} = \frac{1}{y}$$

$$14. \frac{4}{4^{-2}} = 4 \times 4^2 \Rightarrow 64$$

$$15. x^{-10} \cdot x^7 \Rightarrow \frac{x^7}{x^{10}} = \frac{\cancel{x^7}}{\cancel{x^7} \cdot x^3} \Rightarrow \frac{1}{x^3}$$

$$16. \frac{x^{-1}}{x^{-4}} = \frac{\frac{1}{x}}{\frac{1}{x^4}} = \frac{\cancel{x} \cdot x^4}{\cancel{x} \cdot 1} \Rightarrow x^3$$

$$17. 2x^{-1}y = \frac{2y}{x}$$

$$18. x^3 - 2x^2 + 1 \quad \text{type - trinomial equation} \quad \text{degree - 3}$$

$$19. (8x^2 - 3x + 5) + (2x^2 + x - 6) = 8x^2 + 2x^2 - 3x + x + 5 - 6 \\ = 10x^2 - 2x - 1$$

$$20. (-4y^2 - 3y - 2) + (-y^2 - 4) = -4y^2 - y^2 - 3y - 2 - 4 \\ \Rightarrow -5y^2 - 3y - 6$$

$$21. (12x - 3) - (-2x + 7) = 12x + 2x - 3 - 7 \\ = 14x - 10$$

$$22. (8y^2 - 6y - 10) - (-3y^2 + 6y - 3) = 8y^2 + 3y^2 - 6y - 6y - 10 + 3 \\ \Rightarrow 11y^2 - 12y - 7$$

$$23. 8x(-2x^2 - 6x + 9) = 8x \cdot -2x^2 - 8x \cdot 6x + 8x \cdot 9 \\ = -16x^3 - 48x^2 + 72x$$

$$24. (2x-3)(x+5) = 2x \cdot x + 2x \cdot 5 - 3 \cdot x - 3 \cdot 5$$

$$\Rightarrow 2x^2 + 10x - 3x - 15$$

$$\Rightarrow 2x^2 + 7x - 15$$

$$25. (x+4)(3x^2+4x-1) = x \cdot 3x^2 + x \cdot 4x - 1 \cdot x + 4 \cdot 3x^2 + 4 \cdot 4x + 4 \cdot (-1)$$

$$= 3x^3 + 4x^2 - x + 12x^2 + 16x - 4$$

$$\Rightarrow 3x^3 + 16x^2 + 15x - 4$$

$$26. (2x-5)(2x+5)$$

$$\text{use } (a+b)(a-b) = a^2 - b^2$$

$$a = 2x; \quad b = 5$$

$$\Rightarrow (2x)^2 - 5^2$$

$$= 4x^2 - 25$$

$$27. (x-8)^2$$

$$\text{use } (a-b)^2 = a^2 - 2ab + b^2$$

$$a = x \quad b = 8$$

$$\Rightarrow x^2 - 16x + 64$$

$$28. (4a+5)^2$$

$$\text{use } (a+b)^2 = a^2 + 2ab + b^2$$

$$a = 4a \quad b = 5$$

$$\Rightarrow (4a)^2 + 2 \times 4a \times 5 + 5^2$$

$$= 16a^2 + 40a + 25$$

29.  $\frac{40x^8 - 15x^4}{-5x^4}$  take common term out

$$= \frac{5x^4(8x^4 - 3)}{-5x^4}$$

$$\Rightarrow -(8x^4 - 3) \text{ or } 3 - 8x^4$$

30.  $\frac{18y^6 - 16y^4 + 2y}{2y} = \frac{2y(9y^5 - 8y^3 + 1)}{2y}$

$$\Rightarrow 9y^5 - 8y^3 + 1$$

31.  $\frac{-9y - 45}{-9} = \frac{-9(y + 5)}{-9}$

$$\Rightarrow y + 5$$

32.  $\frac{12x^2 - 6x + 3}{3} = \frac{\cancel{3}(4x^2 - 2x + 1)}{\cancel{3}}$

$$= 4x^2 - 2x + 1$$