

Ac Math 1 - Test 4 Practice - Solutions

$$1. \begin{array}{r} 2a^2 - 4a + 3 \\ + 6a^2 + 4a - 3 \\ \hline 8a^2 \end{array}$$

$$2. \begin{array}{r} 2x^3 + 3x^2 + x + 2 \\ - x^2 + x - 4 \\ \hline 2x^3 + 2x^2 + 2x - 2 \end{array}$$

$$3. \begin{array}{r} 9x - 2 \\ + 2x^4 - 5x + 1 \\ \hline 2x^4 + 4x - 1 \end{array}$$

$$4. \begin{array}{r} 7m^2 - 3m + 8 \\ + 3m^2 + 6m - 5 \\ \hline 10m^2 + 3m + 3 \end{array}$$

$$5. \begin{array}{r} x^2 + 1 \\ - x^2 + 1 \\ \hline x^2 + 1 \\ \hline x^2 + 3 \end{array}$$

$$6. \begin{array}{r} 2x^2 + 1 \\ x^2 - 2x + 1 \\ - 2x^2 - 8 \\ \hline x^2 - 2x - 6 \end{array}$$

$$7. \begin{array}{r} 3x + 5 \\ - x^2 + 1 \\ \hline - 2x^2 - x \\ \hline - 3x^2 + 2x + 6 \end{array}$$

$$8. \begin{array}{r} -3x(5x^2 - 4x) \\ - 15x^3 + 12x^2 \end{array}$$

$$9. \begin{array}{r} 2x(x^3 + 5x^2 + 2 + 3x) \\ 2x^4 + 10x^3 + 4x + 6x^2 \end{array}$$

$$10. \begin{array}{r} (x^2 + 4)(x - 3) \\ x^3 - 3x^2 + 4x - 12 \end{array}$$

$$11. \begin{array}{r} (c + 6)(c - 6) \\ c^2 - 6c + 6c - 36 \\ c^2 - 36 \end{array}$$

$$12. \begin{array}{r} (5x + 2)(3x - 1) \\ 15x^2 - 5x + 6x - 2 \\ 15x^2 + x - 2 \end{array}$$

$$13. \begin{array}{r} (5x + 8)(x^2 - 1) \\ 5x^3 + 8x^2 - 5x - 8 \end{array}$$

$$14. \begin{array}{r} (7x + y)^2 \\ 49x^2 + 14xy + y^2 \end{array}$$

$$15. \begin{array}{r} (2x+1)(4x^2-6x+8) \\ 8x^3-12x^2+16x \\ \underline{4x^2-6x+8} \\ 8x^3-8x^2+10x+8 \end{array}$$

$$16. \begin{array}{r} (y+2)(y-3)(y+4) \\ (y+2)(y^2+y-12) \\ y^3+y^2-12y \\ \underline{2y^2+2y-24} \\ y^3+3y^2-10y-24 \end{array}$$

$$17. \begin{array}{r} x+1 \overline{) 10x^4+5x^3+4x^2+0x-9} \\ \underline{-(10x^4+10x^3)} \\ -5x^3+4x^2 \\ \underline{-(-5x^3-5x^2)} \\ 9x^2+0x \\ \underline{-(9x^2+9x)} \\ -9x-9 \\ \underline{-(-9x-9)} \\ 0 \end{array}$$

$$18. \begin{array}{r} x^2-4x+2 \\ x+4 \overline{) x^3+0x^2-14x+8} \\ \underline{-(x^3+4x^2)} \\ -4x^2-14x \\ \underline{-(-4x^2-16x)} \\ 2x+8 \\ \underline{-(2x+8)} \\ 0 \end{array}$$

$$19. \begin{array}{r} x-2 + \frac{-1}{x-2} \\ x-2 \overline{) x^2-4x+3} \\ \underline{-(x^2-2x)} \\ -2x+3 \\ \underline{-(-2x+4)} \\ -1 \end{array}$$

$$20. \begin{array}{r} 2x+11 + \frac{30}{x-2} \\ x-2 \overline{) 2x^2+7x+8} \\ \underline{-(2x^2-4x)} \\ 11x+8 \\ \underline{-(11x-22)} \\ 30 \end{array}$$

$$21. \begin{array}{r|rrrrrr} -1 & 10 & 5 & 4 & 0 & -9 \\ & & -10 & 5 & -9 & 9 \\ \hline & 10 & -5 & 9 & -9 & 0 \end{array}$$

$$22. \begin{array}{r|rrrr} -4 & 1 & 0 & -14 & 8 \\ & & -4 & 16 & -8 \\ \hline & 1 & -4 & 2 & 0 \end{array}$$

$$10x^3-5x^2+9x-9$$

$$x^2-4x+2$$

$$23. \begin{array}{r|rr} 2 & 1 & -4 & 3 \\ & & 2 & -4 \\ \hline & 1 & -2 & -1 \end{array}$$

$$x - 2 + \frac{-1}{x-2}$$

$$24. \begin{array}{r|rr} 2 & 2 & 7 & 8 \\ & & 4 & 22 \\ \hline & 2 & 11 & 30 \end{array}$$

$$2x + 11 + \frac{30}{x-2}$$

$$25. (x+2)^4$$

$$= 1x^4 + 4x^3 \cdot 2 + 6x^2 \cdot 2^2 + 4x \cdot 2^3 + 1 \cdot 2^4$$

$$= x^4 + 8x^3 + 24x^2 + 32x + 16$$

$$\begin{array}{cccccc} & & & & & 1 \\ & & & & & 1 & 1 \\ & & & & & 1 & 2 & 1 \\ & & & & & 1 & 3 & 3 & 1 \\ & & & & & 1 & 4 & 6 & 4 & 1 \\ & & & & & 1 & 5 & 10 & 10 & 5 & 1 \\ & & & & & 1 & 6 & 15 & 20 & 15 & 6 & 1 \end{array}$$

$$26. (a-5)^6$$

$$= 1a^6 + 6a^5(-5) + 15a^4(-5)^2 + 20a^3(-5)^3 + 15a^2(-5)^4 + 6a(-5)^5 + 1(-5)^6$$

$$= a^6 - 30a^5 + 375a^4 - 2500a^3 + 9375a^2 - 18750a + 15625$$

$$27. (2x+5)^5$$

$$= 1(2x)^5 + 5(2x)^4(5) + 10(2x)^3(5)^2 + 10(2x)^2(5)^3 + 5(2x)(5)^4 + 1 \cdot 5^5$$

$$= 32x^5 + 400x^4 + 2000x^3 + 5000x^2 + 6250x + 3125$$

$$28. (3m-1)^3$$

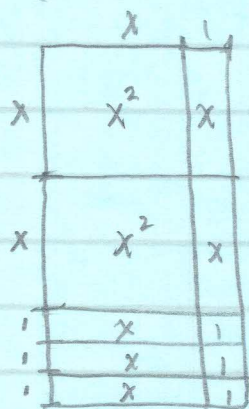
$$= 1 \cdot (3m)^3 + 3(3m)^2(-1) + 3(3m)(-1)^2 + 1(-1)^3$$

$$= 27m^3 - 27m^2 + 9m - 1$$

$$29. \begin{array}{r} 2x^2 + 4x - 5 \\ 3x + 2 \\ \hline 3x + 2 \\ \hline 2x^2 + 10x - 1 \end{array}$$

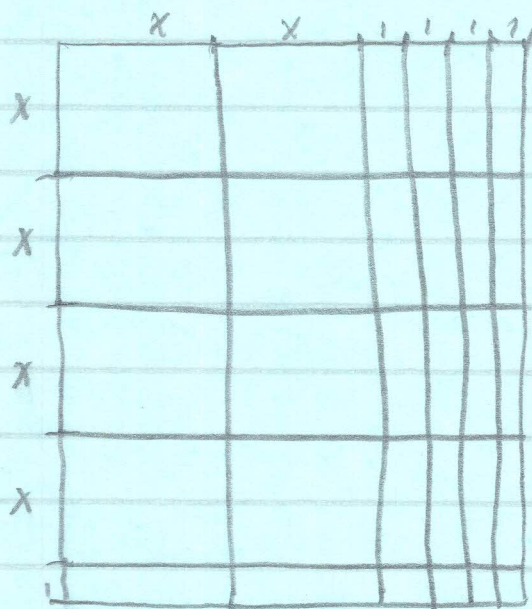
$$\begin{array}{r} 3x^2 + 11x + 3 \\ - (2x^2 + 10x - 1) \\ \hline x^2 + x + 4 \end{array}$$

30. a. $(2x+3)(x+1)$



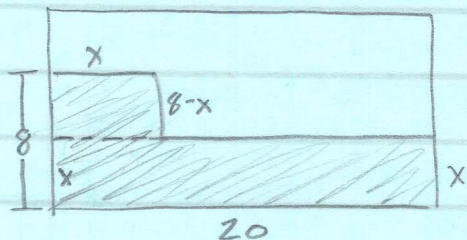
$$2x^2 + 5x + 3$$

b. $(4x+1)(2x+4)$



$$8x^2 + 18x + 4$$

31.



$A = \text{small area} + \text{large area}$

$$x(8-x) + 20x = 8x - x^2 + 20x = -x^2 + 28x$$

32.

$$\begin{aligned} V &= x(3x)(x+2) \\ &= 3x^2(x+2) = 3x^3 + 6x^2 \quad (c) \end{aligned}$$

33.

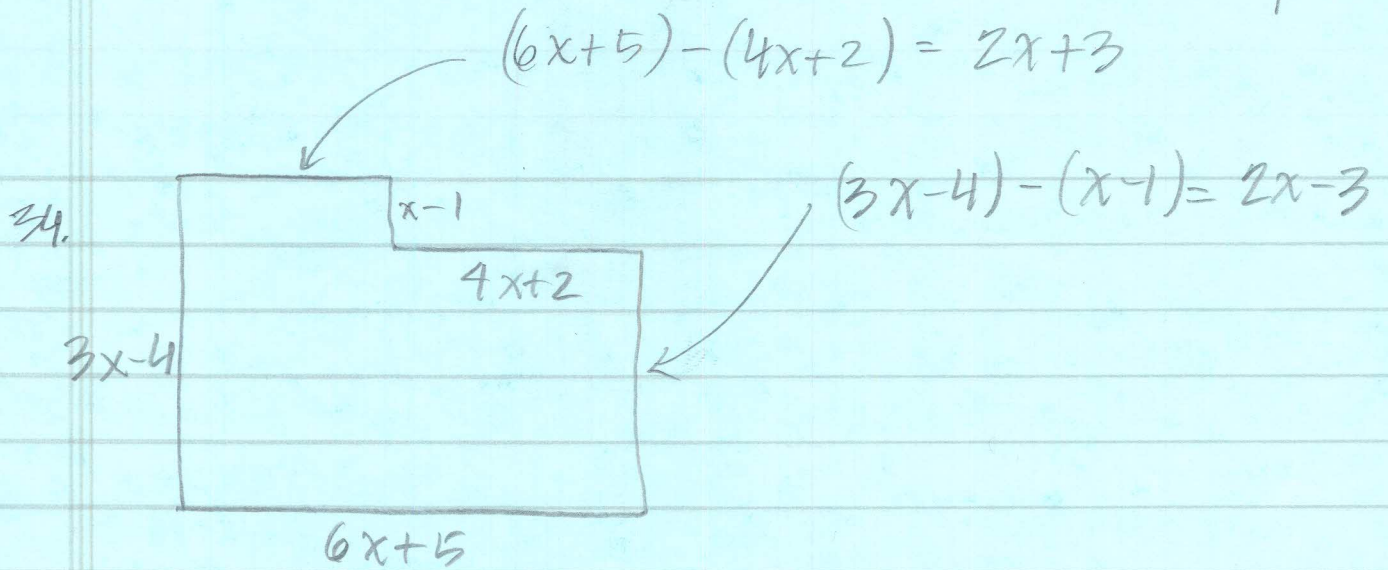
$$\begin{aligned} P &= 2(2x+5) + 2(2x^2+3x-1) \\ &= 4x+10 + 4x^2+6x-2 = 4x^2+10x+8 \end{aligned}$$

$$V = (2x+5)(2x^2+3x-1)$$

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

$$10x^2 + 15x - 5$$

$$\hline 4x^3 + 16x^2 + 13x - 5$$

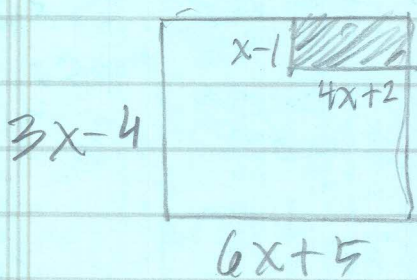


Perimeter =

$$\begin{array}{r}
 3x-4 \\
 2x+3 \\
 x-1 \\
 4x+2 \\
 2x-3 \\
 \cancel{6x+5} \\
 \hline
 P = 18x+2
 \end{array}$$

add all 6 sides

Area = large area - shaded area



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

$$\begin{array}{r}
 (18x^2 - 9x - 20) - (4x^2 - 2x - 2) \\
 18x^2 - 9x - 20 - 4x^2 + 2x + 2
 \end{array}$$

$$A = 14x^2 - 7x - 18$$