

Math 009
Online practice test 2

1. Solve: $4x - 7 = 7x$

$$\frac{-4x}{3} \quad \frac{-4x}{3}$$

$$\frac{-7 = 3x}{3}$$

$$x = -2\frac{1}{3}$$

2. Solve: $9 - 4(2 - 4x) = 6x + 3 / 9 - 8 + 16x = 6x + 3 / 1 + 16x = 6x + 3$

$$\frac{-1}{16x = 6x + 2}$$

$$\frac{-6x \quad -6x}{10x = 2}$$

$$\frac{10}{10} \quad \frac{2}{10}$$

$$x = \frac{1}{5}$$

3. Solve: $\frac{40}{5}x + \frac{40}{4} = \frac{40}{10}x - \frac{40}{8} / 24x + 30 = 4x - 25$

$$\frac{-30}{24x = 4x - 55}$$

$$\frac{-4x \quad -4x}{20x = -55}$$

$$\frac{20}{20} \quad \frac{-55}{20}$$

$$x = -2\frac{3}{4}$$

4. Simplify: (a) $x^4 \cdot x^6 = x^{10}$ (b) $(x^4)^3 = x^{12}$ (c) $x^9 \div x^5 = x^4$ (d) $4^0 = 1$

5. Add: $(4x^3 + 7x^2 - 6x + 9) + (5x^4 - 3x^2 + 7x + 12) = 5x^4 + 4x^3 + 4x^2 + x + 21$

6. Subtract: $(5x^4 + 7x^3 - 6x^2 + 11x - 9) - (5x^4 - 6x^3 + 7x^2 - 12x + 5) = 13x^3 - 13x^2 + 23x - 14$

7. Multiply: $(4x^2 - 3x + 7)(2x + 5) = 8x^3 + 20x^2 - 6x^2 - 15x + 14x + 35 = 8x^3 + 14x^2 - x + 35$

8. Multiply: $(3x + 2)(2x - 5) = 6x^2 - 15x + 4x - 10 = 6x^2 - 11x - 10$

9. Multiply: $(x + 4)(x + 7) = x^2 + 7x + 4x + 28 = x^2 + 11x + 28$

10. Multiply: $(x + 4)(x - 4) = x^2 - 4x + 4x - 16 = x^2 - 16$

11. Multiply: $(x + 4)^2 = x^2 + 4x + 4x + 16 = x^2 + 8x + 16$

12. Factor by grouping: $7x^2 + 14x + 10x + 20$

$$\frac{7x(x + 2) \quad 10(x + 2)}{(x + 2)(7x + 10)}$$

13. Factor by finding a common factor: $3x^3 + 9x^2 - 30x$
 $3x(x^2 + 3x - 10)$
 $3x(x + 5)(x - 2)$

14. Factor: $x^2 + 5x + 24$ **I factored this as follows:** $x^2 + 5x - 24$
 $x^2 + 3x - 8x - 24$
 $x(x + 3) - 8(x + 3)$
 $(x + 3)(x - 8)$

15. Factor: $x^2 - 3x - 28$
 $x^2 + 4x - 7x - 28$
 $x(x + 4) - 7(x + 4)$
 $(x + 4)(x - 7)$

16. Factor: $x^2 - 9$
 $(x - 3)(x + 3)$

17. Factor: $6x^2 + 11x + 3$
 $6x^2 + 2x + 9x + 3$
 $2x(3x + 1) + 3(3x + 1)$
 $(3x + 1)(2x + 3)$

18. Factor: $8x^2 + 10x + 3$
 $8x^2 + 4x + 6x + 3$
 $4x(2x + 1) + 3(2x + 1)$
 $(2x + 1)(4x + 3)$

19. Factor: $5x^3 - 20x^2$
 $5x^2(x - 4)$