Name Answer Key
Practice Test Chapter 6,7(OnLine Sp20)

Elementary Algebra
Professor Freedman

Factor completely in #1 -#9

1) $2x + 12$

$2(x+6)$

2) $y^2 - 49$

$(y+7)(y-7)$

3) $9x^2 - 25y^2$

$(3x-5y)(3x+5y)$

4) $x^2 + 13x + 30$

$(x+10)(x+3)$

5) $3x^2 - 5x - 2$

$(3x+1)(x-2)$

6) $x^2 - 11xy + 24y^2$

$(x-8y)(x-3y)$

7) $5x^2 + 7xy - 6y^2$

$(5x-3y)(x+2y)$

8) $25x^2 - 80xy + 64y^2$

a) $(5x + 4y)(4x - 16y)$

b) $(5x + 8y)(5x + 8y)$

c) $(5x - 8y)(5x + 8y)$

d) $(5x - 8y)(5x - 8y)$

9. $4a^2 + 19a - 5$

$(4a-1)(a+5)$

10) **Multiply:** $\frac{2x^3y}{10xy^2} \cdot \frac{5x^4y^2}{12xy^2} = \frac{x^7y^3}{8x^2y^4} =$

$\frac{x^5}{8y}$

11) **Multiply:** $\frac{2x+6}{x^2-9} \cdot \frac{x^2-3x}{4}$

$\frac{2(x+3)}{(x+3)(x-3)} \cdot \frac{x(x-3)}{4_2} = \frac{x}{2}$

12) **Divide:** $\frac{5x^2+11x+2}{2x+16} \div \frac{x^2-6x-16}{x^2-64}$

$\frac{(5x+1)(x+2)}{2(x+8)} \cdot \frac{(x+8)(x-8)}{(x+2)(x-8)}$

$\frac{5x+1}{2}$

Add or subtract as indicated in #13 - #17

13) $\frac{5x}{x+2} - \frac{3x-4}{x+2} = \frac{5x-3x+4}{x+2} = \frac{2x+4}{x+2} =$

$\frac{2(x+2)}{x+2} = 2$

14) $\frac{x}{x^2-x-12} - \frac{4}{x^2-x-12} = \frac{x-4}{(x+3)(x-4)} =$

$\frac{1}{x+3}$

15) $\frac{3}{x^2y} - \frac{4}{xy^3}$

$\frac{3y^2 - 4x}{x^2y^3}$

16) $\frac{3}{x+5} - \frac{x}{x^2-25}$

$\frac{3(x-5) - x}{(x+5)(x-5)} =$

$\frac{3x-15-x}{(x+5)(x-5)}$

$\frac{2x-15}{(x+5)(x-5)}$

17. Write in simplest form: $\frac{8ab^2}{16a^3b}$

$\frac{b}{2a^2}$

18. Write in simplest form: $\frac{y^2-25}{y^2-y-20}$

$\frac{(y+5)(y-5)}{(y+4)(y-5)} = \frac{y+5}{y+4}$

19. Write in simplest form: $\frac{5x-10}{5x^2-2x-16}$

$\frac{5(x-2)}{(5x+8)(x-2)} = \frac{5}{5x+8}$

20. Solve for x: $3x^2+x-2=0$

$(3x-2)(x+1)=0$

$3x-2=0$ $\quad x+1=0$

$+2+2 \quad -1 \quad -1$

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

21. Solve for x: $x^2+5x=14$

$x^2+5x-14=0$

$(x+7)(x-2)=0$

$x+7=0 \quad x-2=0$

$x=-7 \quad x=2$

22. Multiply (FOIL): $(4x-3y)(2x-y)$

$8x^2-4xy-6xy+3y^2$

$8x^2-10xy+3y^2$

23. Multiply: $(x-7)(x+7)$

$x^2+7x-7x-49$

x^2-49

24. Multiply: $(2x-3)^2$

$(2x-3)(2x-3)$

$4x^2-12x+9$

Solve the following equations for x in #25 - #30

25. $\frac{7b-4}{5b} = \frac{9}{5} - \frac{4}{b}$ $\quad \cdot 5b$

$7b-4 = 9b-20$

$-4 = 2b-20$

$16 = 2b, \quad b=8$

26. $\frac{x}{6} + \frac{3}{4} = \frac{(x-1)}{4}$ $\quad \cdot 12$

$2x+9 = 3x-3$

$9 = x-3$

$12 = x$

27. $\frac{2x}{x+2} - \frac{2}{1} = \frac{x-8}{x+2}$ $\quad \cdot (x+2)$

$2x-2x-4 = x-8$

$-4 = x-8$

$4 = x$

28. $\frac{x+1}{5} = \frac{20}{25}$

$25x+25 = 100$

$25x = 75$

$x = 3$

29. $\frac{4y-2}{5} - \frac{y+4}{5} = \frac{-3}{1}$ $\quad \cdot 5$

$4y-2-y-4 = -15$

$3y-6 = -15$

$3y = -9$

$y = -3$

30. $\frac{3}{7}x - \frac{5}{1} = \frac{24}{7}x + \frac{7}{1}$ $\quad \cdot 7$

$3x-35 = 24x+49$

$-3x \quad -3x$

$-35 = 21x+49$

$-49 \quad -49$

$\frac{-84}{21} = \frac{21x}{21}$

$-4 = x$