BASIC ALGEBRA EXAM 2 FORM S NAME _____

Show all work on this test or on separate paper.
Turn in all work sheets. (CIRCLE) ANSWERS

In 1-5, find the products:

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

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

3. $(2x+5)(3x-8)$

4. $(2x-5)^2$

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

In 6-14, factor completely:

6. x^2+5x

7. $x^2+8x+12$

8. x^2-2x-8

9. $4x^2-25$

10. $2x^3-50x$

11. x^3-7x^2+6x

12. $9x^2-18x$

13. x^4-16

14. $3x^2+23x+14$

In 15–22, express without negative or zero exponents.

15. $5x^0 =$ ____

16. $5x^{-1} =$ ____

17. $5x^{-2} =$ ____

18. $(5x)^{-2} =$

19. $\left(\frac{3}{5}\right)^{-2} =$

20. $(2x^4)^3 =$ ____

21. $(x^3 \cdot x^4)^2 =$

22. $\frac{4x^2y^3}{5x^{-3}y^5} =$

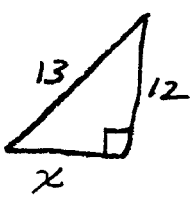
In 23–28, solve for x:

23. $x^2 + 5x + 6 = 0$

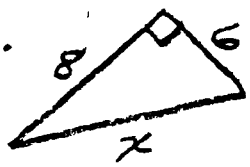
24. $x^2 + 5x = 6$

25. $x^3 - 9x = 0$

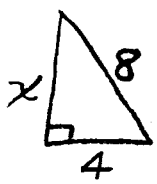
26.



27.



28.



BASIC ALGEBRA EXAM 2 FORM 5 Solutions

1. $3x(2x+5)$
$= 6x^2+15x$

2. $(x+4)(x+2)$
$= x^2+6x+8$

3. $(2x+5)(3x-8)$
$= 6x^2-16x+15x-40$
$= 6x^2-x-40$

4. $(2x-5)^2 = (2x-5)(2x-5)$
$= 4x^2-20x+25$

5. $(x-3)(x^2+2x-3)$
$= x^3+2x^2-3x$
$-3x^2-6x+9$
x^3-x^2-9x+9

6. $x^2+5x = x(x+5)$

7. $x^2+8x+12 = (x+6)(x+2)$

8. $x^2-2x-8 = (x-4)(x+2)$

9. $4x^2-25 = (2x-5)(2x+5)$

10. $2x^3-50x = 2x(x^2-25)$
$= 2x(x-5)(x+5)$

11. x^3-7x^2+6x
$= x(x^2-7x+6)$
$= x(x-6)(x-1)$

12. $9x^2-18x$
$= 9x(x-2)$

13. x^4-16
$= (x^2-4)(x^2+4)$
$= (x-2)(x+2)(x^2+4)$

14. $3x^2+23x+14 = (3x+2)(x+7)$

15. $5x^0 = 5$

16. $5x^{-1} = \frac{5}{x}$

17. $5x^{-2} = \frac{5}{x^2}$

18. $(5x)^{-2} = \frac{1}{(5x)^2} = \frac{1}{25x^2}$

19. $\left(\frac{3}{5}\right)^{-2} = \left(\frac{5}{3}\right)^2 = \frac{25}{9}$

20. $(2x^4)^3 = 2^3x^{12}$
$= 8x^{12}$

21. $(x^3 \cdot x^4)^2$
$= (x^7)^2 = x^{14}$

22. $\frac{4x^2y^3}{5x^{-3}y^5} = \frac{4}{5}x^{2-(-3)} \cdot \frac{1}{y^2}$
$= \frac{4x^5}{5y^2}$

23. $x^2+5x+6 = 0$
$(x+2)(x+3) = 0$
$x = -2$ or $x = -3$

24. $x^2+5x = 6$
$x^2+5x-6 = 0$
$(x+6)(x-1) = 0$
$x = -6$ or $x = 1$

25. $x^3-9x = 0$
$x(x^2-9) = 0$
$x(x-3)(x+3) = 0$
$x = 0 \quad x = 3 \quad x = -3$

26. $x^2+12^2 = 13^2$
$x^2+144 = 169$
$x^2 = 25$
$x = \pm 5$ $\quad x = 5$

27. $8^2+6^2 = x^2$
$64+36 = x^2$
$100 = x^2$
$x = \pm 10$ $\quad x = 10$

28. $4^2+x^2 = 8^2$
$16+x^2 = 64$
$x^2 = 48$
$x = \pm\sqrt{48}$
$x = \sqrt{48}$
$x = 6.93$

29. $\frac{2x^2+5x}{10x}$
$= \frac{2x^2}{10x} + \frac{5x}{10x}$
$= \frac{x}{5} + \frac{1}{2}$