BASIC ALGEBRA EXAM 1G* NAME _____

SHOW ALL WORK ON THIS TEST OR ON SEPARATE PAPER. Circle Answers.

PART 1: (2 points each) Circle your answers!
In 1 - 15, give the value.

1. $7 + 3 \bullet 5$ **2.** $20 \div 4 \bullet 5$ **3.** $5 \bullet 2^2$

4. $8 + 2 \bullet 3^2 - 5$ **5.** $(-12) + (-8)$ **6.** $(-15) + 5$

7. $(-3) \bullet (-8)$ **8.** $(-36) \div 6$ **9.** $16 \bullet (-3)$

10. $12 \div 0$ **11.** $0 \div 12$ **12.** $(-3)^3$

13. $(-1)^8$ **14.** $3^2 + 4^2 + 5^2$ **15.** $(-2)^2 + (-2)^3 + (-2)^4$

In 16 – 19, simplify and combine like terms:

16. $(-8x) + (-15x) + 20x$ **17.** $x^2 - 8x - 14y - 5x^2 + 13x + 5y$

18. $5(5x - 4y) + 4(2y - x)$ **19.** $4(7x + 4) - 3(6x - 4)$

In 20 - 22, given $x = -2$ and $y = 5$, evaluate the following expressions.

20. $x^2 + 3xy + y^2$ **21.** $x^2 - y^2$ **22.** $-x^2 + 2xy$

PART 2: (4 points each, partial credit)
In 23 – 27, solve the equations.

23. $5x + 16 = 36$ **24.** $12x - 20 = -3x + 25$

BASIC ALGEBRA EXAM 1G* NAME _____

25. $6(x - 4) = 10 + 2(7 - x)$

26. $6 - 3(2x + 6) = 2(3x + 1) - 2$

27. $-x(x - 4) = 6(x - 1) - (x^2 - 20)$

In 28 - 31, solve the inequalities; graph on a number line.

28. $4x + 6 \geq x - 12$

_____

29. $-4x < 12$

_____

30. $-6 < x - 4 \leq 2$

_____

31. $-12 \leq 6 - 3x < 9$

_____

In 32 - 36, give equations and solve the word problems.

32. Three times a certain number is equal to the number plus 12. Find the number.

33. **Find three even consecutive numbers such that the first, plus twice the second, plus three times the third is equal to 100.**

34. **The length of a rectangle is 50 meters less than twice the width. The perimeter of the rectangle is 500 meters. Find the length and the width of the rectangle.**

35. **A box contains 20 coins in quarters and dimes worth $3.00. How many of each coin are there?**

36. **A sum of money consists of nickels, dimes, and quarters worth $8.00. There are three times as many nickels as quarters, and the number of dimes is 4 less than the number of nickels. How many of each coin are there?**

BASIC ALGEBRA EXAM 1G* NAME _____

BASIC ALGEBRA EXAM 1G Solutions

1. $7+3\cdot5$ → $7+15$ → (22)

2. $20\div4-5$ → $5-5$ → (25)

3. $5\cdot2^2$ → $5\cdot4$ → (20)

4. $8+2\cdot3^2-5$ → $8+2\cdot9-5$ → $8+18-5$ → (21)

5. $(-12)+(-8)$ → (−20)

6. $(-15)+5$ → (−10)

7. $(-3)\cdot(-8)$ → (24)

8. $(-36)\div6$ → (−6)

9. $16(-3)$ → (−48)

10. $12\div0$ → undefined

11. $0\div12$ → (0)

12. $(-3)^3$ → (−27)

13. $(-1)^8$ → (1)

14. $3^2+4^2+5^2$ → $9+16+25$ → (50)

15. $(-2)^2+(-2)^3+(-2)^4$ → $4+(-8)+16$ → $-4+16$ → (12)

16. $(-8x)+(-15x)+20x$ → $-23x+20x$ → (−3x)

17. $x^2-8x-14y-5x^2+13x+5y$ → $-4x^2+5x-9y$

18. $5(5x-4y)+4(2y-x)$ → $25x-20y+8y-4x$ → $21x-12y$

19. $4(7x+4)-3(6x-4$ → $28x+16-18x+12$ → $10x+28$

20. $x^2+3xy+y^2$ → $(-2)^2+3(-2)(5)+(5)^2$ → $4-30+25$ → (−1)

21. x^2-y^2 → $(-2)^2-5^2$ → $4-25$ → (−21)

22. $-x^2+2xy$ → $-(-2)^2+2(-2)(5)$ → $-4+(-20)$ → (−24)

23. $5x+16=36$ → $-16\ \ -16$ → $5x=20$ → $x=4$

24. $12x-20=-3x+25$ → $+3x\ \ +3x$ → $15x-20=25$ → $+20\ \ +20$ → $15x=45$ → $x=3$

25. $6(x-4)=10+2(7-x)$ → $6x-24=10+14-2x$ → $+2x\ \ +2x$ → $8x-24=24$ → $+24\ \ +24$ → $8x=48$ → $x=6$

26. $6-3(2x+6)=2(3x+1)-2$ → $6-6x-18=6x+2-2$ → $-6x-12=6x$ → $+6x\ \ +6x$ → $-12=12x$ → $-1=x$

27. $-x(x-4)=6(x-1)-(x^2-20)$ → $-x^2+4x=6x-6-x^2+20$ → $+x^2\ -6x\ -6x\ +x^2$ → $-2x=14$ → $x=-7$

28. $4x+6\geq x-12$ → $-x\ \ -x$ → $3x+6\geq-12$ → $-6\ \ -6$ → $3x\geq-18$ → $x\geq-6$

29. $-4x<12$ → $-4\ \ -4$ → $x>-3$

30. $-6<x-4\leq2$ → $+4\ \ +4\ \ +4$ → $-2<x\leq6$

31. $-12\leq6-3x<9$ → $-6\ \ -6\ \ -6$ → $-18\leq-3x<3$ → $-3\ \ -3\ \ -3$ → $6\geq x>-1$

32. Let x = the no. → $3x=x+12$ → $-x\ \ -x$ → $2x=12$ → $x=6$

33. Let x = 1st → $x+2=2^{nd}$ → $x+4=3^{rd}$ → $x+2(x+2)+3(x+4)=100$ → $x+2x+4+3x+12=100$ → $6x+16=100$ → $6x=84$ → $x=14$ → $x+2=16$ → $x+4=18$

$14+2(16)+3(18)=100$ → $14+32+54=100$ ✓

34. Let x = width → $2x-50=$ length → $2(x)+2(2x-50)=500$ → $2x+4x-100=500$ → $6x=600$ → $x=100$ m. W → $2x-50=150$ m. L

Ch: 200 + 300 = 500 ✓

35.

	No Coins	EA	VALUES
Q	x	25	25x
D	20−x	10	10(20−x)
			305

$25x+200-10x=305$ → $15x=105$ → $x=7$ Q → $20-x=13$ D

Ch: 1.75 Q + 1.30 D = 3.00 ✓

36.

	No Coins	EA	VALUES
Q	x	25	25x
N	3x	5	5(3x)
D	3x−4	10	10(3x−4)
			800

$25x+15x+30x-40=800$ → $70x-40=800$ → $70x=840$ → $x=12$ Q → $3x=36$ N → $3x-4=32$ D

Ch: 3.00 + 1.80 + 3.20 = 8.00 ✓