Basic Algebra Exam 1 S R^2 Name_____

Show all work on this test (or on separate paper!)
Turn in all work sheets. Calculators are not allowed!

PART 1: (2 points each) Circle your answers!
In 1 - 13, give the value.

1. $6 + 4 \bullet 8$
2. $18 \div 3 \bullet 2$
3. $2 \bullet 5^2$
4. $6 + 4^2 \div (2 + 2)$
5. $(-6)(-4)$
6. $12 \div 0$
7. $0 \div 12$
8. $8 - (-6)$
9. $(-20) - (-12)$
10. $(-4)^2$
11. $(-1)^5$
12. -2^4
13. $(-2)^2 + (-2)^3$

In 14 - 16, given x=3, y=-2, z=-5, evaluate the following expressions.

14. $y^2 + z^2$
15. $y^2 - 3z^2$
16. $x^2 - xyz$

In 17 – 20, simplify and combine like terms:

17. $3x + 12xy - 7x + 7xy$
18. $3x^2 + 3x + 9x - 9x^2$
19. $4(7x + 5) + 3(8x - 9)$
20. $3(2x - 4) - 9(5x + 8)$

In 21 – 24, give the complete name of the property used:

21. $8 \bullet (3 + 0) = 8 \bullet (3)$ _____
22. $8 \bullet (3 + 0) = (3 + 0) \bullet 8$ _____
23. $8 \bullet (3 + 0) = 8 \bullet (0 + 3)$ _____
24. $8 \bullet (3 + 0) = 8 \bullet (3) + 8 \bullet 0$ _____

PART 2: (4 points each, partial credit)
In 25 – 37, solve the equations.

25. $3x + 12 = 36$

26. $-4x - 8 = 20$

27. $2(x-4) + 4(x-5) = -52$

28. $x + 12 = 5x + 36$

29. $2(x-4) - 4(x-5) = 12$

30. $5 - 2(x+8) = 7 - (5x-3)$

In 31 - 33, solve the inequalities; graph on a numberline.

31a) $x - 2 \geq 3$

32. $-3x + 9 \geq 15$

33. $-2 < 4 - 2x \leq 10$

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b) $-2 < x < 6$

_____ _____

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In 34 - 37, give equations and solve the word problems.

34. Six less than twice a number is 4 more than the number.

35. Three numbers are such that the second number is twice the first number. The third number is 15 less than the second number. The sum of the numbers is 50. Find the numbers.

36. The length of a rectangle is 8 more than twice the width. The perimeter is 96. Find the dimensions of the rectangle.

37. A box contains 40 coins in quarters and dimes. If the value of the coins is $6.70, how many of each coin are there?

38. A box contains nickels, dimes, and quarters worth $6.40. There are twice as many dimes as quarters, and the number of nickels is 15 less than the number of dimes. How many of each are there?

Basic Algebra EXAM 1 S SOLUTIONS

1. $6+4.8$
$6+32$
38

2. $18 \div 3.2$
6.2
12

3. $2 \cdot 5^2$
$2 \cdot 25$
50

4. $6+4\frac{2}{3}(2+2)$
$6+16 \div 4$
$6+4$
10

5. $(-6)(-4)$
24

6. $12 \div 0$
Undef

7. $0 \div 12$
0

8. $8-(-6)$
$8+6$
14

9. $(-20)-(-12)$
$(-20)+12$
-8

10. $(-4)^2$
16

11. $(-1)^5$
-1

12. -2^4
-16

13. $(-2)^2+(-2)^3$
$4+(-8)$
-4

14. y^2+z^2
$(-2)^2+(-5)^2$
$4+25$
29

15. y^2-3z^2
$(-2)^2-3(-5)^2$
$4-3 \cdot 25$
$4-75$
-71

16. x^2-xyz
$(3)^2-(3)(-2)(-5)$
$9-30$
-21

17. $3x+12xy-7x+7xy$
$-4x+19xy$

18. $3x^3+3x+9x-9x^2$
$-6x^2+12x$

19. $4(7x+5)+3(8x-9)$
$28x+20+24x-27$
$52x-7$

20. $3(2x-4)-9(5x+8)$
$6x-12-45x-72$
$-39x-84$

21. Identity for add.
22. Commutative for mult.
23. Commutative for add.
24. Distributive.

25. $3x+12=36$
$-12 \quad -12$
$3x=24$
$x=8$

26. $-4x-8=20$
$+8 \quad +8$
$-4x=28$
$-4 \quad -4$
$x=-7$

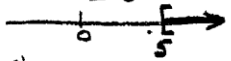
27. $2(x-4)+4(x-5)=-52$
$2x-8+4x-20=-52$
$6x-28=-52$
$+28 \quad +28$
$6x=-24$
$x=-4$

28. $x+12=5x+36$
$-5x \quad -5x$
$-4x+12=36$
$-12 \quad -12$
$-4x=24$
$x=-6$

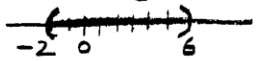
29. $2(x-4)-4(x-5)=12$
$2x-8-4x+20=12$
$-2x+12=12$
$-12 \quad -12$
$-2x=0$
$-2 \quad -2$
$x=0$

30. $5-2(x+8)=7-(5x-3)$
$5-2x-16=7-5x+3$
$-2x-11=-5x+10$
$+5x \quad +5x$
$3x-11=10$
$+11 \quad +11$
$3x=21$
$x=7$

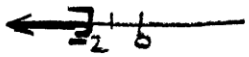
31(a) $x-2 \geq 3$
$+2 \quad +2$
$x \geq 5$



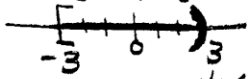
(b) $-2<x<6$



32. $-3x+9 \geq 15$
$-9 \quad -9$
$-3x \geq 6$
$-3 \quad -3$
$x \leq -2$



33. $-2<4-2x \leq 10$
$-4 \quad -4 \quad -4$
$-6<-2x \leq 6$
$-2 \quad -2 \quad -2$
$3>x \geq -3$
x is between -3 and 3



34. Let x = the no.
$2x-6=x+4$
$-x \quad -x$
$x-6=4$
$+6 \quad +6$
$x=10$

35. Let x = 1st no.
$2x$ = 2nd no.
$2x-15$ = 3rd no.
$x+2x+2x-15=50$
$5x-15=50$
$+15 \quad +15$
$\frac{5x}{5}=\frac{65}{5}$
$x=13$ 1st no.
$2x=26$ 2nd no.
$2x-15=11$ 3rd no.

36. Let x = width.
$2x+8$ = length
$2(x)+2(2x+8)=96$
$2x+4x+16=96$
$6x=80$
$x=\frac{80}{6}=\frac{40}{3}=13\frac{1}{3}$ W
$2x+8=26\frac{2}{3}+8$
$=34\frac{2}{3}$ L

37.

	No Coins	EA	VALUES
Q	x	25	$25(x)$
D	$40-x$	10	$10(40-x)$
			670 ¢

$25x+10(40-x)=670$
$25x+400-10x=670$
$15x=270$
$x=18$ Q. → \$4.50
$40-x=22$ D. → 2.20
\$6.70