Name _____ Class _____ Date _____

Unit 1 Test Review **Intro to Alg 2**

Learning Target
1.1 I can identify the properties of real numbers.

Name the property of real numbers illustrated by each equation.

1. $(2 + x) + 3 = 2 + (x + 3)$ Associative

2. $8 + 0 = 8$ Identity

3. $16(3t + 4v) = 48t + 64v$ Distributive

4. $\sqrt{2} \cdot 3 = 3 \cdot \sqrt{2}$ Commutative

Lists the sets of numbers to which each number belongs.

5. -17 Integer **6.** $\sqrt{52}$ Irrational **7.** 5 Natural **8.** -3.25 Rational **9.** 0 Whole

Learning Target
1.2 I can use properties of real numbers and the correct order of operations to simplify expressions and functions.

Simplify each expression.

10. $\frac{3(a-b)}{9} + \frac{4}{9}b$ $\frac{3a+b}{9}$

11. $t + \frac{t^2}{2} + t^2 + t$ $2t + \frac{3}{2}t^2$

12. $2(m - n^2) - 6(n^2 + 3m)$ $-16m - 8n^2$

13. $x(x - y) + y(y - x)$ $x^2 + y^2 - 2xy$

Learning Target
1.3 I can solve single-step and multi-step equations in one variable.

Solve each equation.

14. $7y + 5 = 6y + 11$ $y = 6$

15. $\frac{1}{4}x + 3 = \frac{1}{3}x - 4$ $\frac{1}{4}x = \frac{1}{3}x - 7$ $\frac{1}{4}x - \frac{1}{3}x = -7$ (Change fract.) $\frac{3}{12}x - \frac{4}{12}x = -7$ $-\frac{1}{12}x = -7 \cdot 12$ $x = 84$

16. $t - 3\left(t + \frac{4}{3}\right) = 2t + 3$ $t = \frac{-7}{4}$

17. $0.5(c + 2.8) - c = 0.6c + 0.3$ $c = 1$

Solve the equation for the indicated variable. State any restrictions on the variable.

18. $\frac{1}{3}(x + 5) = k$, for x $x = 3k - 5$

19. $A = \frac{1}{2}(b_1 + b_2)h$, for b_2 $b_2 = \frac{2A}{h} - b_1$

20. $A = \frac{1}{2}(b_1 + b_2)h$, for h $h = \frac{2A}{b_1 + b_2}$

21. $P = 2(l + w)$, for w $w = \frac{P}{2} - l$

22. $\frac{4}{3}x - \frac{5}{6}y = 2$, for y $y = \left(\frac{4}{3}x + 2\right)\frac{6}{5}$ $y = \frac{8}{5}x - \frac{12}{5}$

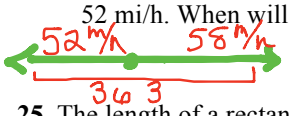
Learning Target
1.4 I can create equations in one variable from verbal expressions and use them to solve the problem.

Write an equation and solve the problem.

23. The cost of renting a car is 19.95 per day and 20 cents per mile. Find the cost of renting a car for a day when the car is driven 50 miles. 19.95 x # of days + .2 x # of miles

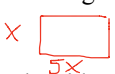
$19.95(1)+0.2(50)=29.95$

24. Two buses leave Dallas at the same time and travel in opposite directions. One bus averages 58 mi/h, and the other bus averages 52 mi/h. When will they be 363 mi apart?



$52h+58h=363$ $h=3.3$

25. The length of a rectangle is 5 cm greater than its width. The perimeter is 106 cm. Find the dimensions of the rectangle.



$P=l+l+w+w$
$106=x+x+5x+5x$ $x=8.8$

26. The sides of a triangle are in the ratio of 2:8:4. If the perimeter is 27 in, what is the length of each side of the triangle?

$2x+8x+4x=27$ $x=27/14$ 9

27. Find two consecutive odd integers whose sum is 96.

$96=(2x-1)+(2x+1)$ $96=4x$ $x=24$

odd int 1 odd int 2

$2x-1$ $2x+1$
$2(24)-1$ $2(24)+1$
47 49

$47+49=96$

28. The measure of the complement of an angle is 9° more than twice the angle. Find the measures of the angles.

$2x+9$ x $180=2x+9+x$ $x=57$ angle $2=2(57)+9=123$

29. A car salesman makes $350 per week, plus 8% commission from every car he sells. If he sells 3 cars at $22,000 each, how much did he earn? The next week, he earns $1500. How much (in dollars) did he sell?

total $=350+0.08x$ (1) $350+0.08(66,000)=5630$ (2) $1500=350+.08x$

$14,375

Learning Target
1.5 I can solve single-step and multi-step inequalities in one variable.

Solve each inequality. Graph the solutions.

30. $2c+5 \le -1$ $c \le -3$

31. $4-3x>10$ $x<-2$

Learning Target
1.6 I can solve compound inequalities containing "and" or "or".

Solve each compound inequality. Graph the solutions.

32. $2x-3<-5$ or $3x-10>x$ $x<-1$ or $x>5$

33. $-3<2x-3<5$ $0<x<4$

Learning Target
1.7 I can solve linear inequalities containing absolute value.

Solve each equation. Check for extraneous solutions.

34. $|2x-9|=1$ $x=5$ $x=4$ None

35. $|2y+5|=3y$ $y=5$ $y=-1$ $y=-1$

Solve each inequality. Graph the solutions.

36. $|4z-3| \ge 5$ $z \le -\frac{1}{2}$ $z \ge 2$

37. $6|5x-2|-1<17$ $-3<5x-2<3$ $-\frac{1}{5}<x<1$

38. The temperature T of a refrigerator is at least 35°F and at most 41°F. Write an absolute value inequality and a compound inequality for the temperature of the refrigerator.

$35 \le x \le 41$