Advanced Algebra 2 Name KEY

Chapter 1 Review Worksheet

Section 1-2 Distribute, Combine Like Terms, Evaluate, Order of Operations

Simplify each expression

1) $5(x - 2) - 3(2x + 7)$

$5x - 10 - 6x - 21$

$-1x - 31$

2) $7x^2 - 3x + 2x(x - 3)$

$7x^2 - 3x + 2x^2 - 6x$

$9x^2 - 9x = 9x(x-1)$

Evaluate the expression

3) $6xy + 3x^2$ when x = 4 and y = -2

$6 \cdot 4 \cdot -2 + 3(4)^2$

$-48 + 3 \cdot 16$

$-48 + 48 = 0$

a. -2^4 b. $(-3)^3$ c. $(-2)^4$

-16 -27 16

Use the order of operations to simplify each. Show your steps

4) $-2(3 - 6) + 7(2)$

$-2(-3) + 14$

$6 + 14$

20

5) $4(6-1)^2 + 3(7)$

$4(5)^2 + 21$

$4 \cdot 25 + 21$

121

Section 1-3 Solving Equations

Solve each equation. Show your steps.

6) $3x - 6 = 15 - 4x$

$+4x \quad +4x$

$7x - 6 = 15$

$7x = 21$

$x = 3$

7) $\frac{2}{3}x + 10 = 14$

$-10 \quad -10$

$\frac{3}{2} \cdot \frac{2}{3}x = 4 \cdot \frac{3}{2}$

$x = \frac{12}{2}$

$x = 6$

8) $4(3x - 2) = 5(3x + 2) - 6$

$12x - 8 = 15x + 10 - 6$

$12x - 8 = 15x + 4$

$+8 \quad +8$

$12x = 15x + 12$

$-15x \quad -15x$

$-3x = 12$

$x = -4$

9) $-4(x - 3) + 10 = 2x - 8$

$-4x + 12 + 10 = 2x - 8$

$-4x + 22 = 2x - 8$

$+8 \quad +8$

$-4x + 30 = 2x$

$\frac{30}{6} = \frac{6x}{6}$

$x = 5$

Section 1-4 Rewriting & Evaluating Formulas

10) Solve the equation $4x + 5y = 15$ for y. Then find y when x = 6. (decimals OK)

$4x+5y=15$

$\frac{5y}{5}=\frac{15-4x}{5}$

$y=3-\frac{4}{5}x$

$y=3-\frac{4}{5}\cdot 6$

$y=-1.8$

$y=3-\frac{24}{5}$

11) Rewrite the formula $A=\frac{1}{2}(b_1+b_2)h$ for b_1. Then find base one of the trapezoid when the area is 45 square feet, base two is 7 and the height is 9 feet.

$A=\frac{1}{2}(b_1+b_2)h$

$\frac{2A}{h}=(b_1+b_2)h$

$\frac{2A}{h}=b_1+b_2$

$b_1=\frac{2A}{h}-b_2$

$b_1=\frac{2(45)}{9}-7$

$b_1=3$

12) Solve the equation $5xy - 10y = 30$ for y. Then find y for the value: x = 4.

$5xy-10y=30$

$y(5x-10)=30$

$y=\frac{30}{5x-10}$

$y=\frac{30}{5(4)-10}=3$

Section 1-5 Story Problem Applications

13) Write an equation for the table

x	0	1	2	3	4
y	15	20	25	30	35

$y=5x+15$

14) If I averaged 68 miles per hour on my recent vacation, how long did it take me to travel the 350 miles to my destination?

$d=rt$

$350=68\cdot t$

$t=5.15$ hrs

★ when in doubt always round to two places

15) I recently called to have my satellite upgraded. The DVR upgrade cost $98. I also had to pay $24 an hour for the installation. If my total bill was $170, how long did it take to have the new materials installed?

x = hours to install

$98+24x=170$

$24x=72$

$x=3$ hrs.

16) You are hanging 4 pictures on a wall in your home, which is 29 feet wide. The widths of the ~~three~~ four pictures are 5 feet, 2 1/2 feet, 3 1/2 feet and 4 feet. You want the space between the pictures to be the same, and you want the spaces left and right of the pictures to be two times the space between the adjacent pictures. How should you position the pictures?

$7x + 15 = 29$

$7x = 14$

$x = 2$

2 ft btw pictures
4 ft at ends

Section 1-6 Solving & Graphing Inequalities

Solve and graph the single inequality.

17) $3(2x - 1) + 5x \geq 8$

$6x - 3 + 5x \geq 8$

$11x - 3 \geq 8$

$11x \geq 11$

$x \geq 1$

Solve and graph each compound inequality.

18) $10 < 4x + 10 < 22$

$-10 \quad -10 \quad -10$

$\frac{0}{4} < \frac{4x}{4} < \frac{12}{4}$

$0 < x < 3$

19) $-7x + 3 > -25$ OR $2(x + 5) > 20$

$-3 \quad -3$

$\frac{-7x}{-7} > \frac{-28}{-7}$

$x < 4$ or

$2x + 10 > 20$

$2x > 10$

$x > 5$

$x < 4$ or $x > 5$

Section 1-7 Solving Absolute Value Equations and Inequalities

Solve each absolute value equation.

20) $|6x+2|=20$

$6x+2=20$ $\quad$ $6x+2=-20$

$-2 \quad -2$

$6x=18$ $\quad$ $6x=-22$

$\frac{6x}{6}=\frac{-22}{6}$

$x=3 \quad x=-\frac{22}{6}=-\frac{11}{3}$

21) $|-3x+5|=23$

$-3x+5=23$ $\quad$ $-3x+5=-23$

$-5 \quad -5$ $\quad$ $-5 \quad -5$

$-3x=18$ $\quad$ $-3x=-28$

$x=-6 \quad x=\frac{28}{3}=9\frac{1}{3}$

Solve and graph each absolute value inequality.

22) $|2x-7|\geq 15$

OR

$2x-7\leq -15$ $\quad$ $2x-7\geq 15$

$+7 \quad +7$ $\quad$ $+7 \quad +7$

$2x\leq -8$ $\quad$ $2x\geq 22$

$\frac{2x}{2}\leq\frac{-8}{2}$

$x\leq -4$ or $x\geq 11$

23) $3|2x+5|-7<8$

$+7 \quad +7$

$\frac{3|2x+5|}{3}<\frac{15}{3}$

$|2x+5|<5$

and

$2x+5>-5$ $\quad$ $2x+5<5$

$-5 \quad -5$ $\quad$ $-5 \quad -5$

$2x>-10$ $\quad$ $2x<0$

$x<0$

$x>-5$ and $x<0$

$-5<x<0$