Sec I – Unit 5 Expression & Equations Name_____ ID: 1

Unit Review: Date_____Period_____

1. Explain the difference between an expression and an equation and give an example of each.

Simplify ↓ → Solve
= sign.

Translate each phrase into an algebraic expression or equation.

2. A ~~number~~ x more than 7 is 18 Expression OR Equation

$x + 7 = 18$

3. The quotient of 3 and a number squared Expression OR Equation

$3 \div x$ or $\frac{3}{x}$

4. 8 less than a number is 12 Expression OR Equation

$x - 8 = 12$

5. The product of a number and -5 Expression OR Equation

$-5x$

6. Twice the sum of a number and 8 Expression OR Equation

$2x + 8$

7. A number to the 6th power divided by -4 Expression OR Equation

$x^6 \div (-4)$

a) Decide if each problem is an equation or an expression.
b) If it is an expression, simplify the expression. If it is an equation, solve the equation.

8. $4x + 3.5 - 2x$ Expression OR Equation

$2x + 3.5$

9. $5x + 8 = -3x - 12$ Expression OR Equation

$+3x \quad +3x$

$8x + 8 = -12$

$-8 \quad -8$

$8x = -20$ $x = -2.5$

10. $4(3x - 4) - 2x = 4$ Expression OR Equation

$12x - 16 - 2x = 4$

$10x - 16 = 4$

$+16 \quad +16$

$10x = 20$

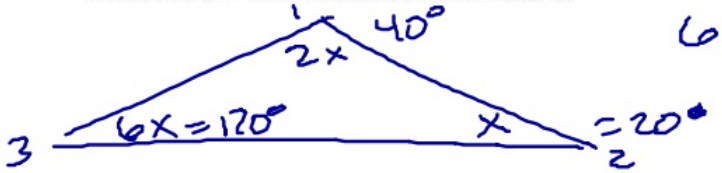
$x = 2$

11. $\frac{5}{3}x + \frac{1}{2} - \frac{2}{3}x$ Expression OR Equation

$\frac{10}{6}x + \frac{3}{6} - \frac{4}{6}x$

$\frac{6}{6}x + \frac{3}{6} = x + \frac{1}{2}$

12. In a triangle, the first angle is twice the measure of the second and the third is 6 times as much as the second. Find the measure of each angle.

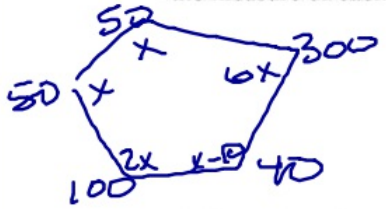


$6x + 2x + x = 180$

$9x = 180$

$x = 20$

13. In a pentagon (5 angles), the first and second angles are equal. The third angle is 6 times the first angle, the fourth angle is 10 less than the first, and the fifth angle is double the second angle. Find the measure of each angle.



$x + x + 6x + x - 10 + 2x = 540$

$11x - 10 = 540$

$11x = 550$

$x = 50$

14. Berkley plays the trumpet in the school band and has a goal to practice 300 minutes per week. On Monday she practiced half as long as she did on Tuesday. She forgot to practice on Wednesday and had to practice extra on Thursday and Friday. She practiced 30 minutes more on Thursday than Tuesday and on Friday she practiced twice as long as Tuesday. How many minutes did she practice per day?

Mon : $\frac{1}{2}x$ 30 min

Tues : x 60 min

Thurs : $x+30$ 90 min

Fri : $2x$ 120 min.

$\frac{1}{2}x + x + x + 30 + 2x = 300$

$4.5x + 30 = 300$

$4.5x = 270$

$x = 60$

15. Mr. Wallace drove to Boise, Idaho in 5 days. On Monday and Wednesday he traveled the same distance. On Tuesday he traveled 2 times as far as he did on Monday, and on Thursday he traveled 220 miles. If the total trip covered 1,020 miles, how far did Mr. Wallace travel on Tuesday?

Mon	x	200 mi.
Tues	$2x$	400 mi.
Wed	x	200 mi.
Thurs	220	220 mi.
Fri	0	0 mi.

$x + 2x + x + 220 = 1020$

$4x + 220 = 1020$

$4x = 800$

$x = 200$

16. Bryce is training for a big race. He ran three times as far on Thursday as he did on Tuesday and 1.5 miles more on Saturday than he did on Thursday. If he ran a total of 15.5 miles in the week, how far did he run on Thursday?

Tues	x
Thurs	$3x$ $-3+2=6$ miles.
Sat.	$3x + 1.5$

$x + 3x + 3x + 1.5 = 15.5$

$7x + 1.5 = 15.5$

$7x = 14$

$x = 2$

Name the property of each statement.

17. If 10 = 4x-2, then 12 = 4x. +2 +2 — Add prop Eq

18. If 10 = 2y and 2y = x, then 10 = x. — transitive Prop.

19. If 2x = 100, then x = 50. ÷2 ÷2 — Div. Prop. Eq.

20. If x + 30 = 90, then x = 60. -30 -30 — Sub. Prop. Eq

Solve each algebraic proof. Make sure to justify each step

21. Given: 4x + 8 = 44
Prove: x = 9

Statement.	Reason.
1) $4x+8=44$ $-8\ \ -8$	1) Given
2) $\frac{4x}{4}=\frac{36}{4}$	2) Sub prop. Eq.
3) $x=9$	3) Div. Prop. Eq.

22. Given: 4x + 5 + 3x = -16
Prove: x = -3

Statement.	Reason.
1) $4x+5+3x=-16$	1) Given.
2) $7x+5=-16$ $-5\ \ -5$	2) Comb. Like. tms
3) $\frac{7x}{7}=\frac{-21}{7}$	3) Sup. Prop. Eq.
4) $x=-3$	4) Div. Prop. Eq.

23. Given: 6(x + 1) +2x = 30
Prove: x = 3

1) $6(x+1)+2x=30$	1) Given
2) $6x+6+2x=30$	2) Dist. Prop
3) $8x+6=30$ $-6\ \ -6$	3) Comb. Like terms.
4) $\frac{8x}{8}=\frac{24}{8}$	4) Sub. Prop. Eq
5) $x=3$	5) Div. Prop. Eq.