M-A2 Algebra 2 Week 7 10/23

Favorite Food	
Burgers	18
Steak	22
Pasta	12
French fries	26
East NC BBQ	2
total	80

$P(\text{East NC BBQ}) = \frac{2 \div 2}{80 \div 2} = \boxed{\frac{1}{40}}$

$P(\text{Burgers or Pasta}) = \frac{18+12}{80} = \frac{30 \div 10}{80 \div 10} = \boxed{\frac{3}{8}}$

$P(\text{not steak}) = \frac{80-22}{80} = \frac{58 \div 2}{80 \div 2} = \boxed{\frac{29}{40}}$

$P(\text{French fries or ENCBBQ}) = \frac{26+2}{80} = \frac{28 \div 4}{80 \div 4} = \boxed{\frac{7}{20}}$

Favorite Food	
Burgers	18
Steak	22
Pasta	12
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total	80

P(French fries and then pasta with replacement)

$P(\text{fries}) = \frac{26 \div 2}{80 \div 2} = \boxed{\frac{13}{40}}$

$P(\text{pasta}) = \frac{12 \div 4}{80 \div 4} = \boxed{\frac{3}{20}}$

$\frac{13}{40} * \frac{3}{20} = \boxed{\frac{39}{800}}$

P(ENCBBQ and then Steak without replacement)

$P(\text{ENCBBQ}) = \frac{2}{80} = \boxed{\frac{1}{40}}$

$\frac{1}{40_{20}} * \frac{22}{79} = \boxed{\frac{11}{1580}}$

$P(\text{steak w/o replacmnt}) = \boxed{\frac{22}{79}}$

Algebra 2 Chapter 1 Pre-Test

Each problem is worth 4 points. Please show all work in order to receive partial credit for incorrect responses.

1.) Find the opposite of each number.

a) 8 $\boxed{-8}$

b) ⅓

c) -7 $\boxed{7}$

d) -0.6

2.) Find the reciprocal of each number.

a) 4

b) 5/7 $\boxed{\frac{7}{5}}$

c) -½

d) -6 $\boxed{-\frac{1}{6}}$

3.) Simplify.

a) |7 - 10| $|-3| = \boxed{3}$

b) -|-8|

c) 0.3 |-4|

d) - |11 - 18| $-|-7| = \boxed{-7}$

4.) Determine whether each number is rational or irrational. In addition, name the set(s) of numbers to which each number belongs.

a) 6.779 Rational - terminal decimal

b) 0.567567567…

c) 9 Rational - counting, whole, integer

d) 0

e) -3 Rational - integer

f) π

g) $\sqrt{16}$

h) $\sqrt{50}$ Irrational - not perfect square

5.) Simplify by combining like terms.

a) $6a - 4(a + 1)$

$6a - 4a - 4$

$2a - 4$

b) $11x + 7y + 3x - 5y$

6.) Simplify by combining like terms.

c) $a(a - c) + c(c - a)$

d) $\frac{3(x+y)}{4} + \frac{9x}{2}$ Find common denominator

$\frac{3}{4} + \frac{1}{2}$

$\frac{1}{2} = \frac{2}{4}$

$\frac{3}{4} + \frac{2}{4} = \frac{3+2}{4}$

$\frac{3(x+y)}{4} + \frac{18x}{4}$

$\frac{3(x+y) + 18x}{4}$

$\frac{3x + 3y + 18x}{4} = \frac{21x + 3y}{4}$

7.) Simplify the algebraic expression. Then evaluate.

$7(g + h) - (g - h)$; $g = 4, h = -5$

$7(4+(-5))-(4-(-5))$

$(4+5)$

$7(-1) - 9$

$-7 - 9 = \boxed{-16}$

8.) Evaluate each expression for the given variable.

$8r^2 + 4(r - s) - 3s$; $r = 3, s = -2$

9.) Evaluate each expression for the given variable.

$-n(3m + 2) - 2m^2$; $m = 3, n = 5$

$-5(3(3)+2)-2(3)^2$

$-5(3(3)+2)-2(9)$

$-5(9+2)-2(9)$

$-5(11)-2(9) = -55-18 = \boxed{-73}$

10.) Evaluate each expression for the given value of the variable.

$a^2 + b^2$; $a = -5, b = 6$

11.) Solve each equation for the given variable.

$5t - 3f = 2t$, for t

$-2t \quad -2t$

$3t - 3f = 0$

$+3f \quad +3f$

$\frac{3t}{3} = \frac{3f}{3}$

$t = f$

12.) Solve each equation for the given variable.

$\frac{x+2y}{3} + 5y = 4x$, for y

13.) Solve for a.

Multiply by LCM

$\frac{15}{1}\left(\frac{2}{3}a + \frac{1}{5}b\right) = \left(4 - a\right)15$

$\frac{30}{3}a + \frac{15}{5}b = 60 - 15a$

$10a + 3b = 60 - 15a$

$+15a \quad +15a$

$25a + 3b = 60$

$-3b \quad -3b$

$\frac{25a}{25} = \frac{60-3b}{25}$

$a = \frac{60-3b}{25}$

14.) Solve for x.

$\frac{x+y}{z} = \frac{3}{7}$

$7(x+y) = 3z$

15.) Solve the inequality. Graph the solution.

$-6(2 - b) + 3b \geq 0$

$-12 + 6b + 3b \geq 0$

$-12 + 9b \geq 0$

$+12 \quad +12$

$\frac{9b}{9} \geq \frac{12}{9}$

$b \geq \frac{12}{9}$

$b \geq \frac{4}{3}$

16.) Solve the compound inequality. Graph the solution.

$3x \leq 21$ or $-9x < -72$

17.) Solve the inequality. Graph the solution.

$\frac{2}{3}(-6x + 15) \geq 6$

$\frac{2}{3}\left(\frac{-6x}{1}\right) + \frac{2}{3}\left(\frac{15}{1}\right)$

$\frac{-12x}{3} + \frac{30}{3} \geq 6$

$-4x + 10 \geq 6$

$-10 \quad -10$

$-4x \geq -4$

$-4 \quad -4$

divide by negative → flip

$x \leq 1$

18.) Solve each equation. Check for extraneous solutions

$|x + 4| = 9$

19.) Solve each equation. Check for extraneous solutions

$|3x - 5| = 10 + 2x$

Must check

$3x - 5 = 10 + 2x$
$-2x \quad -2x$
$x - 5 = 10$
$+5 \quad +5$
$x = 15$

Check
$10 + 2(15)$
$10 + 30$
40

$3x - 5 = -10 - 2x$
$+2x \quad +2x$
$5x - 5 = -10$
$+5 \quad +5$
$\frac{5x}{5} = \frac{-5}{5}$
$x = -1$

Check
$10 + 2x$
$10 + (2)(-1)$
$10 + (-2)$
8

20.) Solve each equation. Check for extraneous solutions

$|x - 3| + 12 = 7$

isolate absolute value first!

$-12 \quad -12$
$|x - 3| = -5$

No Solution

21.) Solve each equation. Check for extraneous solutions

$|4x - 12| = 8x$

22.) Solve and graph the inequality.

$|2x + 4| \leq 10$

flip! negative!

$2x + 4 \leq 10$

$2x + 4 \geq -10$

23.) Solve and graph the inequality.

$|x - 9| - 7 \leq -4$

24.) What is the probability of each using standard die

a) Rolling an even number

b) Rolling a 3 or 4

c) Rolling a 7

25.) Since 1996, there have been 24 Super Bowls. Of these, the New England Patriots have represented the AFC 10 times, the Denver Broncos 4 times, and the Pittsburgh Steelers 4 times. Use this information to answer the following:

a) What is the probability the New England Patriots would represent the AFC during this time?

b) What is the probability that the Denver Broncos or Pittsburgh Steelers would represent the AFC during this time?

c) What is the probability that another team other than the New England Patriots, Denver Broncos or Pittsburgh Steelers would represent the AFC during this time?

d) What is the probability that Pittsburgh was not a representative during this time?