1st Quarter Exam Part I Name _____

Basic Skills

1. $-2\frac{2}{5}+-5\frac{3}{4}--1\frac{1}{2}=$ 1. $-6\frac{13}{20}$

2. $1\frac{1}{4}+\frac{5}{12}-2\frac{2}{8}=$ 2. $\frac{-7}{12}$

3. $1\frac{1}{5}\bullet 2\frac{4}{15}\div\frac{5}{6}=$ 3. $3\frac{33}{125}$

TYPE INTO CALCULATOR

Order of Operations (Show Work)

4. $\left(\frac{3}{4}-\frac{2}{3}\right)^2\div\frac{11}{12}-\frac{1}{2}\bullet\frac{1}{5}$ 4. $\frac{-61}{660}$

$\left(\frac{1}{12}\right)^2\div\frac{11}{12}-\frac{1}{10}$

$\frac{1}{144}\cdot\frac{12}{11}-\frac{1}{10}$

$\frac{1}{132}-\frac{1}{10}$

$\frac{-61}{660}$

5. $\frac{3}{4}\left[5(3-6)^2+4\bullet 3\right]$ 5. $42\frac{3}{4}$

$\frac{3}{4}\left[5(-3)^2+12\right]$

$\frac{3}{4}\left[5(9)+12\right]$

$\frac{3}{4}\left[45+12\right]$

$\frac{3}{4}\left[57\right]$

$42\frac{3}{4}$

Properties and Identities
Match each of the following.

6. G commutativity over multiplication

7. B associativity of multiplication

8. D additive identity

9. A reflexive property

10. H distributive prop. from left over addition

11. C transitive property

12. E additive inverse

A. $4k + 5 = 4k + 5$ REFLEXIVE

B. $7*(2*1) = (7*2)*1$ ASSOCIATIVE FOR MULT.

C. If $3(5) = 11 + 4$ and $11 + 4 = 15$ then $3(5) = 15$ TRANSITIVE

D. $X + 0 = X$ ADDITIVE IDENT.

E. $4 + (-4) = 0$ ADDITIVE INVERSE

F. If $y + 7 = 11$ then $11 = y + 7$ SYMMETRIC

G. $M*K + 5 = K*M + 5$ COMMUTATIVE FOR MULT.

H. $3(5x + 2) = 15x + 6$ DIST FROM LEFT OVER ADD.

Distribute and Combine Like Terms

13. $-5 + 2(4g + 5) + 6(3g - 2) - 7g$

$-5 + 8g + 10 + 18g - 12 - 7g$

$19g - 7$

13. $19g - 7$

14. $8(2t + 3) - 5(4t - 6)$

$16t + 24 - 20t + 30$

$-4t + 54$

14. $-4t + 54$

15. $-7 + 3(2g + 5) + 3(6g - 1) - 9g$

$-7 + 6g + 15 + 18g - 3 - 9g$

$15g + 5$

15. $15g + 5$

Function Notation

$f(x) = -5x - 3$ $g(x) = 3x^2 - 1$ $h(x) = 2x + 7$ $w(x) = |x - 10| + 3$

16. f(-3)

$f(-3) = -5[-3] - 3$
$= 15 - 3$
$= 12$

16. 12

17. g(2) + f(1)

$11 - 8$
3

$g(2) = 3[2]^2 - 1$
$= 3[4] - 1$
$= 12 - 1$
$= 11$

$f(1) = -5[1] - 3$
$= -5 - 3$
$= -8$

17. 3

18. f(7) + w(1)

$-38 + 12$
-26

$f(7) = -5[7] - 3$
$= -35 - 3$
$= -38$

$w(1) = |1 - 10| + 3$
$= |-9| + 3$
$= 9 + 3$
$= 12$

18. -26

19. f (w (h($\frac{1}{2}$)))

$f(w(8))$
$f(5)$
-28

$h(\frac{1}{2}) = 2[\frac{1}{2}] + 7$
$= 1 + 7$
$= 8$

$f(5) = -5[5] - 3$
$= -25 - 3$
$= -28$

$w(8) = |8 - 10| + 3$
$= |-2| + 3$
$= 2 + 3$
$= 5$

19. -28

20. g (f (1))

$g(-8)$
191

$f(1) = -5[1] - 3$
$= -8$

$g(-8) = 3[-8]^2 - 1$
$= 3[64] - 1$
$=$

20. 191

Solving Equations (Show Work)

21. $\frac{3}{5}(15m+10)-4m=9$

$9M + 6 - 4M = 9$

$5M + 6 = 9$

$5M = 9 - 6$

$5M = 3$

$\frac{5M}{5} = \frac{3}{5}$

$M = 3/5$

21. $M = 3/5$

22. $-7(y-3)+2y=-11$

$-7y + 21 + 2y = -11$

$-5y + 21 = -11$

$-5y = -11 - 21$

$\frac{-5y}{-5} = \frac{-32}{-5}$

$y = 6\,2/5$

22. $y = 6\,2/5$

23. $\frac{3}{11}(33t-55)+8t=\frac{-3}{4}(8t-4)+5$

$9t - 15 + 8t = -6t + 3 + 5$

$17t - 15 = -6t + 8$

$17t + 6t = 8 + 15$

$\frac{23t}{23} = \frac{23}{23}$

$t = 1$

23. $t = 1$

24. $\left[\frac{1}{3}g-\frac{4}{5}=\frac{3}{4}g\right]$ 60

$20g - 48 = 45g$

$-48 = 45g - 20g$

$\frac{-48}{25} = \frac{25g}{25}$

$-1\,23/25 = g$

24. $-1\,23/25 = g$

25. $\left[\frac{1}{2}n-\frac{3}{4}=\frac{1}{6}n-3\right]$ 12

$6N - 9 = 2N - 36$

$6N - 2N = -36 + 9$

$\frac{4N}{4} = \frac{-27}{4}$

$N = -6\,3/4$

25. $N = -6\,3/4$

1st Quarter Exam Part II Name _____

Solving Equations (Show Work)

26. $\left[\frac{-3}{5}r - 2 = 7\right]$ 5

$-3R - 10 = 35$

$-3R = 35 + 10$

$\frac{-3R}{-3} = \frac{45}{-3}$ → $R = -15$

26. $R = -15$

27. $\left[-2 = \frac{5+k}{3}\right]$ 3

$-6 = 5 + k$

$-6 - 5 = k$

$-11 = k$

27. $-11 = k$

28. $\left[\frac{7g-2}{4} = \frac{3g+4}{5} + \frac{2g-3}{2}\right]$ 20

$5(7g-2) = 4(3g+4) + 10(2g-3)$

$35g - 10 = 12g + 16 + 20g - 30$

$35g - 10 = 32g - 14$

$35g - 32g = -14 + 10$

$3g = -4$

$\frac{3g}{3} = \frac{-4}{3}$

$g = -1\frac{1}{3}$

28. $g = -1\frac{1}{3}$

29. $\frac{4}{7}(21t - 35) + 3t = \frac{-2}{5}(10t - 15) + 4$

$12t - 20 + 3t = -4t + 6 + 4$

$15t - 20 = -4t + 10$

$15t + 4t = 10 + 20$

$\frac{19t}{19} = \frac{30}{19}$

$t = 1\frac{11}{19}$

29. $t = 1\frac{11}{19}$

30. $\left[\frac{2}{7}y - \frac{4}{3} = \frac{5}{7}y + 3\right]$ 21

$6y - 28 = 15y + 63$

$-28 - 63 = 15y - 6y$

$\frac{-91}{9} = \frac{9y}{9}$

$-10\frac{1}{9} = y$

30. $-10\frac{1}{9} = y$

Open Sentences
Find the solution set

31. $2x + 7 \leq 20$
r = { –1, 3, 4, 7}

31. $\{-1, 3, 4\}$

✓ -1: $5 \leq 20$
✓ 3: $13 \leq 20$
✓ 4: $15 \leq 20$
X 7: $21 \leq 20$

32. $x^2 - 8 \geq x$
r = {–3, 1, 2, 10}

32. $\{-3, 10\}$

✓ -3: $1 \geq -3$
X 1: $-7 \geq 1$
X 2: $-4 \geq 2$
✓ 10: $92 \geq 10$

Basic Word Problems

33. Twice **number** increased by three times the sum, of four times the number and five, is equal to nine less than, five times that number. Find the number.

NUMBER w

$2w + 3(4w + 5) = 5w - 9$
$2w + 12w + 15 = 5w - 9$
$14w + 15 = 5w - 9$
$14w - 5w = -9 - 15$
$9w = -24$
$w = -2\frac{2}{3}$

NUMBER = $-2\frac{2}{3}$

34. Find three consecutive even integers such that three times the sum of the first and third integers is fourteen less than, seven times the second integer.

FIRST: $2n$
SECOND: $2n+2$
THIRD: $2n+4$

$3[\text{FIRST} + \text{THIRD}] = 7[\text{SECOND}] - 14$
$3[2n + 2n + 4] = 7[2n + 2] - 14$
$3[4n + 4] = 14n + 14 - 14$
$12n + 12 = 14n$
$12 = 14n - 12n$
$12 = 2n$
$6 = n$

FIRST: 12
SECOND: 14
THIRD: 16

Number Problems

35. The sum of two numbers is 23. Three times one number increased by five is one less than twice the other.

ONE: ℓ
OTHER: $23-\ell$

$3[\text{ONE}] + 5 = 2[\text{OTHER}] - 1$

$3\ell + 5 = 2[23-\ell] - 1$

$3\ell + 5 = 46 - 2\ell - 1$

$3\ell + 5 = 45 - 2\ell$

$3\ell + 2\ell = 45 - 5$

$\frac{5\ell}{5} = \frac{40}{5}$

$\ell = 8$

ONE: 8
OTHER: 15

36. The difference of two numbers is three. Nine times the smaller is thirty-three more than six times the larger. Find the two integers.

ONE: $d+3$
OTHER: d

$9[\text{OTHER}] = 6[\text{ONE}] + 33$

$9d = 6(d+3) + 33$

$9d = 6d + 18 + 33$

$9d = 6d + 51$

$9d - 6d = 51$

$3d = 51$

$d = 17$

ONE: 20
OTHER: 17

Technology Problems: Do not work these out by hand, simply zero them out and use the calculator to solve them. Answer to **four decimal places** when appropriate.

A. $2\frac{2}{3}(7f-11)+4\frac{2}{3}=-5$

$2\frac{2}{3}(7x-11)+4\frac{2}{3}+5=0$

A. $f=1.0536$

B. $\frac{5p-3}{2}=\frac{4p+5}{8}-\frac{3p+4}{13}$

$0=\frac{4p+5}{8}-\frac{3p+4}{13}-\frac{5p-3}{2}$

B. $p=.8147$

C. $\frac{3}{7}g-2\frac{4}{5}=4\frac{3}{8}g$

$\frac{3}{7}g-2\frac{4}{5}-4\frac{3}{8}g=0$

C. $g=-.7095$

D. $14r-2\frac{5}{7}(3r-11)=12\frac{2}{3}$

$14x-2\frac{5}{7}(3x-11)-12\frac{2}{3}=0$

D. $R=-2.9350$

E. $12.893a-2.114(3a-2)=11.145$

$12.893A-2.114(3A-2)-11.145=0$

E. $A=1.0559$

F. $18y-13\frac{1}{4}=4\frac{2}{5}(5y-2)+4.67$

$18y-13\frac{1}{4}-4\frac{2}{5}(5y-2)-4.67=0$

F. $y=-2.28$