Name and section: _____

Instructor's name: _____

- **Please do not open exam until instructed to begin.**
- This exam is to be completed in the allotted time period of 50 minutes.
- There are 15 problems which appear on the fronts and backs of the pages of this exam.
- You may earn a total of 115 points.
- Read each question carefully.
- Credit may not be given without sufficient supporting work.
- Simplify answers when possible.
- The use of cell phones, books, or notes are not permitted while taking this exam.
- Approved calculators are allowed.

1. Classify each number below as a rational number or an irrational number.

	Rational	Irrational
$-\sqrt{9}$		
0.141414...		
-12π		
$\sqrt{100}$		
-18.94		
$\frac{3}{13}$		
$\sqrt{10}$		

2. Write the written expression using inequality notation.

   y is less than -6

3. Write an algebraic expression for the following statement. Use the variable x to represent the unknown value.

   19 more than two-thirds of a number

4. Perform the indicated operation.

   $\frac{2}{7} - \frac{3}{5}$

5. Simplify.
   $-3(x + 2y - 7) + 5x(2 - 5y)$

6. Evaluate the given expression.
   $-(3 - 4^2)^2 - 6 \cdot (-3)$

7. Solve the equation.
   $0.8x - 1.2 = 0.4x + 0.8$

8. Solve the equation.
   $22x - 18x + 28 = 14 - 30$

9. Solve the equation.

   $4(2x - 3) + 8 = 8x - (2x + 16)$

10. The first of two numbers is six less than twice the second number. The sum of the two numbers is 24. Find each number.

11. Solve for w and be sure to simplify your answer.

    $\frac{5}{4}w - 1 = \frac{3}{4}w + \frac{1}{2}$

12. The label of a medication bottle warns that the user must store the medication at a temperature of 20°C (centigrade). What is the temperature in degrees Fahrenheit at which the medication must be stored? Use the formula

$$F = \frac{9C + 160}{5}$$

13. Jamie bought a CD player for her car. The price had been decreased by 18%. She was able to pay \$36 less than the original cost. What was the original cost of the CD player?

14. Dave has dimes and quarters in his bank. He has one more quarter than dimes. He has \$2.35 in the bank. How many coins of each type does he have?

15. Libby's four quiz grades in her math class are 88,80,79, and 84. What score does she need to obtain on her fifth quiz for her quiz average to be an 85.

Solutions

1. Classify each number below as a rational number or an irrational number.

	Rational	Irrational
$-\sqrt{9}$		
0.141414...		
-12π		
$\sqrt{100}$		
-18.94		
$\frac{3}{13}$		
$\sqrt{10}$		

Rational	1 point
Rational	1 point
Irrational	1 point
Rational	1 point
Rational	1 point
Rational	1 point
Irrational	1 point

2. Write the written expression using inequality notation.

   y is less than -6

$y < -6$	8 points

3. Write an algebraic expression for the following statement. Use the variable x to represent the unknown value.

   19 more than two-thirds of a number

$\frac{2}{3}x + 19$	7 points

4. Perform the indicated operation.

   $\frac{2}{7} - \frac{3}{5}$

$\frac{10}{35} - \frac{21}{35}$	4 pts to here
$-\frac{11}{35}$	8 pts to here

5. Simplify.

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

$-3x - 6y + 21 + 10x - 25xy$	4 pts to here
$7x - 6y - 25xy + 21$	8 pts to here

6. Evaluate the given expression.

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

$-(3-16)^2-6\cdot(-3)$	4 pts to here
$-(-13)^2-6\cdot(-3)$	6 pts to here
$-169+18=-151$	8 pts to here

7. Solve the equation.

   $0.8x-1.2=0.4x+0.8$

$0.4x-1.2=0.8$	3 pts to here
$0.4x=2.0$	5 pts to here
$x=5$	7 pts to here

8. Solve the equation.

   $22x-18x+28=14-30$

$-4x+28=-16$	3 pts to here
$-4x=-44$	5 pts to here
$x=11$	7 pts to here

9. Solve the equation.

   $4(2x-3)+8=8x-(2x+16)$

$8x-12+8=8x-2x-16$	3 pts to here
$8x-4=6x-16$	4 pts to here
$2x-4=-16$	5 pts to here
$2x=-12$	6 pts to here
$x=-6$	7 pts to here

10. The first of two numbers is six less than twice the second number. The sum of the two numbers is 24. Find each number.

Let x =the second number	
and $2x-6$=first number	4 pts to here
$x+2x-6=24$	5 pts to here
$3x=30$	6 pts to here
$x=10$	7 pts to here
The numbers are 10 and 14	8 pts to here

11. Solve for w and be sure to simplify your answer.

    $\frac{5}{4}w-1=\frac{3}{4}w+\frac{1}{2}$

$(4)\frac{5}{4}w-1(4)=(4)\frac{3}{4}w+(4)\frac{1}{2}$	2 pts to here
$5w-4=3w+2$	4 pts to here
$2w=6$	6 pts to here
$w=3$	8 pts to here

12. The label of a medication bottle warns that the user must store the medication at a temperature of 20°C (centigrade). What is the temperature in degrees Fahrenheit at which the medication must be stored? Use the formula

$$F = \frac{9C + 160}{5}$$

$F = \frac{9(20) + 160}{5}$	4 pts to here
$F = 68$	6 pts to here
The medication should be stored at 68°F	8 pts to here

13. Jamie bought a CD player for her car. The price had been decreased by 18%. She was able to pay $36 less than the original cost. What was the original cost of the CD player?

Let c=cost of cd player	
$0.18c = 36$	4 pts to here
$c = 200$	6 pts to here
The original price of the cd player is $200	8 pts to here

14. Dave has dimes and quarters in his bank. He has one more quarter than dimes. He has $2.35 in the bank. How many coins of each type does he have?

Let $x =$ # of dimes	
$x + 1 =$ # of quarters	1 pt to here
$0.25(x + 1) + 0.1x = 2.35$	2 pts to here
$0.25x + 0.25 + 0.1x = 2.35$	3 pts to here
$0.35x + 0.25 = 2.35$	4 pts to here
$0.35x = 2.1$	5 pts to here
$x = 6$	6 pts to here
$y = 6 + 1 = 7$	7 pts to here
Dave has 6 dimes and 7 quarters	8 pts to here

15. Libby's four quiz grades in her math class are 88,80,79, and 84. What score does she need to obtain on her fifth quiz for her quiz average to be an 85.

$\frac{88+80+79+84+x}{5} = 85$	3 pts to here
$88 + 80 + 79 + 84 + x = 85(5)$	4 pts to here
$331 + x = 425$	5 pts to here
$331 - 331 + x = 425 - 331$	6 pts to here
$x = 94$	7 pts to here
Libby must earn a 94 on her quiz	8 pts to here