MATH 082 FINAL - PRACTICE TEST #2 Revised 06/23/09

**Give all answers in simplest form.**

1. Simplify the expression by combining like terms: $-3\left(4x^{2}-7x+9\right)-(5x^{2}+3x-4)$
2. Simplify. Write all answers without negative or zero exponents. $\frac{-21x^{2}y^{-5}}{14x^{-4}y^{3}}$
3. Solve for x: 11 – 6 (x + 3) + 4x = 2
4. Solve for x: x – = x +
5. Solve the inequality and graph the solution: -4x – 3 > 5
6. Evaluate $2x+3(2y-z), given x=8, y=3, and z=5$
7. Graph the line x – 3y = -6
8. Graph the line y = - + 4
9. Find the slope of the line passing through the points (-3,2) and (5,12).
10. Calculate the slope of the following graph.

 

1. Write the equation of the line that passes through the points (-5, -16) and (4 , 11).

Math 082 Final - Practice Test #2 cont.

In problems 12 & 13, solve the system of equations.

12. 2x – 5y = 16

 x = 4y+11

13. 3x – 5y = -7

 6x + 8y = 4

14. Simplify: $(-3x^{2}y^{5})^{3}$

15. a) Write the following in Scientific Notation: 0**.**00575

 b) Convert $2.39×10^{-4}$ to decimal notation.

 c) Multiply. Give your answer in scientific notation form. $\left(7.5×10^{3}\right)∙(3.8×10^{5})$

16. Multiply : $-5x(3x^{2}+5x-6)$

17. Multiply : $\left(4x-3y\right)(5x+2y)$

18. Factor completely: 4yx3 + 8yx2 – 12y

 19. Factor completely: $x^{2}-64$

 20. Factor completely: $x^{2}+5x-24$

1. Solve for x by factoring: 
2. Translate into an equation using one variable and solve: the sum of 6 times a number and two is eight less than the product of four and the number.
3. Solve by graphing:



 Math 082 Final - Practice Test #2 cont.

1. CCBC sold 240 tickets for a play. Student tickets cost $3 and non-student tickets cost $8. If receipts total $1, 555, how many tickets of each type were sold? Set up a system of equations that models the situation and solve the system to find how much of each type were sold.
2. The slope of a line is -3 and one point on a line is $(2, -3).$ Find the equation of the line

and write the answer in slope-intercept form.

 26. Simplify: 

 27. Solve the formula for the given variable:  for y.

**PRACTICE TEST SOLUTIONS**

1. $-3\left(4x^{2}-7x+9\right)-\left(5x^{2}+3x-4\right)$

 =$-12x^{2}+21x-27-5x^{2}-3x+4)$

 =$-17x^{2}+18x-23$

1. $\frac{-21x^{2}y^{-5}}{7x^{-4}y^{3}}=\frac{-3x^{6}}{2y^{8}}$
2. 11 – 6 (x + 3) + 4x = 2 Distribute the -6

 11 – 6x – 18 +4x = 2 Combine like terms

 -2x – 7 = 2 Add 7 to both sides of the equation

 -2x = 9 Divide both sides of the equation by -2

 **x = - **

1. x – = x + ;

Find the common denominator. Then multiply the common denominator by each term of the equation.

1. **·** x – **12 ·** = **12 ·** x + **12 ·**

 8x – 3 = 10x + 18 Subtract 8x from both sides of the equation

 -3 = 2x + 18 Subtract 18 from both sides

 -21 = 2x Divide both sides of the equation by 2

 **= x**

 Math 082 Final - Practice Test #2 cont.

1. -4x – 3 > 5 Add 3 to both sides

 -4x > 8 Divide both sides by -4 and flip the inequality symbol

 **x < -2**

 

1. $2x+3\left(2y-z\right)=2∙8+3\left(2∙3-5\right)=16+3\left(6-5\right)=16+3∙1=16+3=19$

equation by MB



1. x – 3y = -6 , Find the x and y intercepts.

|  |  |
| --- | --- |
| x | y |
| 0 | 2 |
| -6 | 0 |

To find ordered pairs, choose a value for x or y,

then substitute this value into the equation to solve

for the missing value of the variable.



1. y = - + 4

|  |  |  |
| --- | --- | --- |
| x | y |  |
| -2 | 5  |  |
| 0 | 4 |  |
| 2 | 3 |  |

The slope of the line is ½ and the y-intercept is 4. Plot the y-intercept (0,4). Then use the slope to find other points on the line. Starting at (0,4) rise 1 and run 2 left (Move up 1 and left 2). Repeat this (Move up 1 and left 2) to find additional points on the line.

 Math 082 Final - Practice Test #2 cont.

1. slope = 



 10. Pick any two points on the line

 (2, 0) and (0,6)

 

 OR ****

11. First, calculate the slope. *m* = $\frac{y\_{2}-y\_{1}}{x\_{2}-x\_{1}}$ = $\frac{11-(-16)}{4-(-5)}$ = $\frac{27}{9}$ = 3

Then, use the point (4 , 11) in *y = 3x + b* to solve for *b*.

y = mx + b 11 = 3(4) + b 11 = 12 + b

 -12 -12

 -1 = b **Equation:** ***y = 3x – 1***

12. 2x – 5y = 16 2(4y + 11) – 5y =16 Substitute 4y + 11 for x x = 4(-2)+11 Substitute

 x = 4y +11 8y + 22 – 5y = 16 Distribute the 2 x = -8 + 11

 3y + 22 = 16 Combine like terms x = 3

 3y = -6 Subtract 22 from both sides

 y = -2 Divide both sides of the equation by 3

 Substitute y = -2 into the original equation to find x

**Solution: (3, -2)**

13. 3x – 5y = -7 - 6x + 10y =14 Multiply by -2 3x – 5(1) = -7 Substitute y = 1 to find x

 6x + 8y = 4 6x + 8y = 4 Add down 3x – 5 = -7

 18y = 18 3x = -2

 y = 1 x =

**Solution:** **(, 1)**

14. $(-3x^{2}y^{5})^{3}=-27x^{6}y^{15}$

 Math 082 Final - Practice Test #2 cont.

 15. a) 0.00575= **5.75 x 10-3**

 b) $2.39×10^{-4}=0.000239$

 c) $\left(7.5×10^{3}\right)∙(3.8×10^{5})$

 $=28.5×10^{8}$

 $ =(2.85×10^{1})×10^{8}$

 $=2.85×10^{9}$

 16. $-5x\left(3x^{2}+5x-6\right)=-15x^{3}-25x^{2}+30x$

 17. $\left(4x-3y\right)\left(5x+2y\right)=20x^{2}+8xy-15xy-6y^{2}=20x^{2}-7xy-6y^{2}$

18. Greatest Common Factor = 4y

 4yx3 + 8yx2 – 12y

 **4y(x3 + 2x2 – 3)**

19. $ x^{2}-64=\left(x+8\right)(x-8)$, from the difference of two square formula

20. $x^{2}+5x-24$ B=5, C=-24

 $=(x^{2}-3x)+(8x-24)$

 $=x\left(x-3\right)+8(x-3)$

 $=\left(x-3\right)(x+8)$

21. 

  Factor using the AC test (A = 1, B=-2, C=-24)

  Set each factor equal to 0

 x – 6 = 0 x + 4 = 0 Solve each equation

 **x = 6 x = -4**

 22. Let  the number, translate the statement into a mathematical equation:

 ****

 ** subtract 4x and 2 from both sides**

$x=-5$ **divide both sides of the equation by 2**

Math 082 Final - Practice Test #2 cont.

1. Graph the lines the equations  and , then find the intersection point between two lines.



Solution: $x=0,y=-3$

 24. Let x = the number of student tickets sold

 y = the number of non-student sold

 x + y = 240 -3x – 3y = -720 Multiply by -3 x +167 = 240

 3x+8y=1555 3x + 8y =1555 x = 73

 5y = 835

 y =167 Substitute into the original equation to find x

**The number of student tickets sold = x = 73; the number of non-student tickets sold = y = 167**

25.

,

, since 

 Then, use the point (2 , -3) in *y = -3x + b* to solve for *b*.

$-3=-3\left(2\right)+b$

$-3=-6+b$ Add 6 to both sides of the equation

 3 = b **Equation**: ***y = -3x + 3***

 26. 

 27. 

  Add –2x to both sides of the equation

  divide both sides of the equation by 3