TAKE HOME FINAL #1
Semester Review WS #1
Will make up 10 points on the final . . . graded on accuracy

Name Key

1. Evaluate $|-2|\cdot 3^3-(5-11)^2$

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2. Evaluate $\sqrt{81}+24\div 6\cdot 3-5^2 = 9+\frac{24}{6}\cdot 3-25$

-4

3. How many solutions does this system of equations have? $\begin{cases}4x-y=5\\ y=3x-2\end{cases}$

A) 0 (B) 1 C) 2 D) an infinite number

4. How many and what type of solutions does $x^2-5x+16=0$ have?

$b^2-4ac=-39$ 2 imaginary

5. Find the value of the discriminant given x^2+3x-4

$b^2-4ac=3^2-4(1)(-4)=25$

6. A student has some pennies and dimes. All total, he has 21 coins. If he adds them up, he has \$1.56. How many dimes does he have?

A) 20 (B) 15 C) 19 D) 6

$x+y=21$ $x+10y=156$
$-(x+y=21)$
$9y=135$
$y=15$

7. Find the product of $(x+5)(3x^2-2x+3)$

$3x^3+13x^2-7x+15$

8. Solve $2x^2+5x-23=0$. Answer should be in most simplified form.

$x=\frac{-5\pm\sqrt{209}}{4}$

9. What is the degree and leading coefficient of the polynomial: $-3x^5+4x^3-2x+7$

Degree = 5 Leading Coefficient = -3

10. Combine and simplify: $2\sqrt{27}-4\sqrt{75}$

$-14\sqrt{3}$

11. Evaluate $a^2-4(b^3-a)+\frac{a}{b}$ if $a=4$ and $b=-2$

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12. Name the sets of numbers that each value belongs to: (a) 4 and (b) $2\sqrt{7}$

a) natural, whole, Integer, Rational, Real (N, W, Z, Q, R) b) irrational, real (I, R)

13. Solve: $\frac{2}{3}-\frac{1}{6}x=\frac{3}{4}$

$x=-\frac{1}{2}$

14. Find the vertex: $f(x)=2x^2-8x+3$

(2, -5)

15. A plane flies 600 miles upwind in 3 hours. It makes the return trip in only 2 hours. What is the speed of the plane in still air? $D=RT$

$600=(P-W)3$
$600=(P+W)2$

$200=P-W$
$300=P+W$
$500=2P$
$250=P$

250 mph

16. Solve: $3|2x-4|-4=11$

$x=-\frac{1}{2}$ or $\frac{9}{2}$

17. Simplify $\frac{c^{-6}x^{-2}y^{3}}{x^{-5}y^{4}(c^{2})^{0}}$

$\frac{x^3}{c^6 y}$

18. Simplify $\frac{8x^{3}}{x^{-2}}\cdot\frac{3x^{2}}{4x^{4}}$.

$6x^3$

19. In the solution of the system of equations $\begin{cases}2x+3y=15\\x+4y=23\end{cases}$, y = $\frac{31}{5}$

$-5y=-31$

20. Simplify $\left(\frac{12x^{-4}yz^{5}}{20x^{7}y^{-3}z^{8}}\right)^{-2}$

$\frac{25x^{22}z^{6}}{9y^{8}}$

21. Simplify : $\frac{6+2(6-8)}{5+2\cdot3^{3}}$ = $\frac{2}{59}$

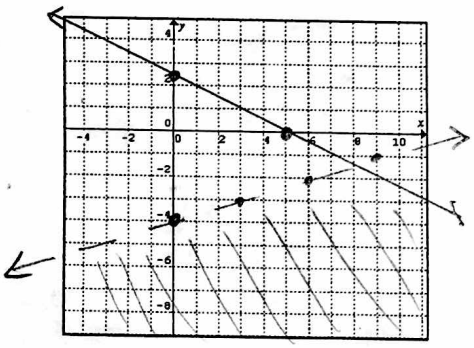
22. Solve $4x^{2}-2x+2=0$. Answer should be in most simplified form.

$x=\frac{1}{4}\pm\frac{\sqrt{7}}{4}i$

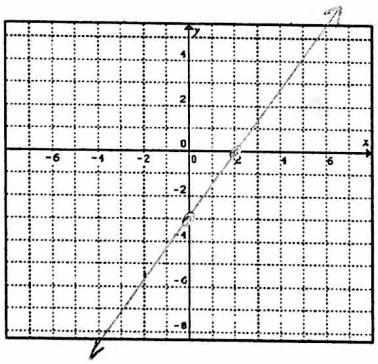
23. Solve $(x+3)^{2}-8=0$. Give the exact answer.

$x=-3\pm2\sqrt{2}$ $\quad -5.828$ or -0.172

24. Graph $\begin{cases}y<\frac{1}{3}x-4\\x+2y\le5\end{cases}$

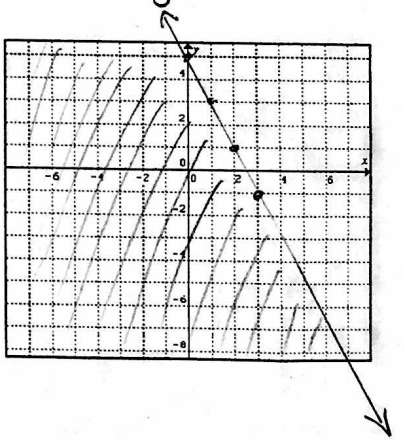


25. Graph: $3x-2y=6$



26. $-2y\ge4x-10$

$y\le-2x+5$



27. Given the two points $(3,-4)$ and $(-1,6)$ find the equation of the line in:

$m=\frac{6-(-4)}{-1-(3)}=\frac{10}{-4}=-\frac{5}{2}$

(a) Write in point-slope form
(b) Write in slope-intercept form
(c) Write in standard form

a) $y-6=-\frac{5}{2}(x+1)$ or $y+4=-\frac{5}{2}(x-3)$

$y-6=-\frac{5}{2}x-\frac{5}{2}$ $\quad y+4=-\frac{5}{2}x+\frac{15}{2}$

b) $y=-\frac{5}{2}x+\frac{7}{2}$ $\quad y=-\frac{5}{2}x+\frac{7}{2}$

c) $5x+2y=7$ $\quad 5x+2y=7$

28. Graph $y\ge-2x^{2}+4x+5$