EOC Review Skills #1. NO WORK=NO CREDIT   Name: Per: Date:

1. Factor completely. Diff Sg. $9x^2 - 25y^2$ $(3x+5y)(3x-5y)$	2. Factor completely. $9x^2 \oplus 25y^2$ NOT a Diff PRIME	3. Factor completely. $x^2 + 7x + 12$ $(x+3)(x+4)$
4. Factor completely. $3x^2 + 10x - 8$ $(3x-2)(x+4)$	5. Factor completely. DST $81m^2 - 90m + 25$ $(9m-5)(9m-5)$	6. Factor completely. $x^4 - 3x^2 - 4$ Diff Sg. $(x^2 - 4)(x^2 + 1)$ $(x+2)(x-2)(x^2+1)$
7. Factor completely. Diff Sg. $16x^4 - 1$ $(4x^2-1)(4x^2+1)$ $(2x+1)(2x-1)(4x^2+1)$	8. Factor completely. Grouping $x^2 + 2x + xy + 2y$ $x(x+2)\,y(x+2)$ $(x+y)(x+2)$	9. Factor completely. GCF Diff Sg. $50x^2 - 32$ $2(25x^2-16)$ $2(5x-4)(5x+4)$
10. Factor completely. GCF $16x^2 - 8x$ $8x(2x-1)$ $25 \cdot 2b^3(b)c^4(c)$	11. Solve $2x^2 - 3x - 5 = 0$ $(2x-5)(x+1)=0$ $x = \tfrac{5}{2}, -1$ Take opposite $25 \cdot 2 \quad 26 \cdot 2 \quad 16 \cdot 2$	12. Solve $m^2 - 5m = 0$ GCF $m(m-5)=0$ $m=0,5$
13. Simplify $2\sqrt{50a b^3 c^5 d^8}$ $10bc^2d^4\sqrt{2abc}$ EVEN EXP → Div by 2 ODD EXP → go one lower	14. Simplify. $\sqrt{50} + 3\sqrt{72} - 2\sqrt{32}$ $5\sqrt{2} + 18\sqrt{2} - 8\sqrt{2}$ $15\sqrt{2}$	15. Express as a trinomial. $(x+4)^2$ FOIL $(x+4)(x+4)$ $x^2 + 4x + 4x + 16$ $x^2 + 8x + 16$
16. Express as a trinomial. $(2x - 3y)^2$ $(2x-3y)(2x-3y)$ $4x^2 - 6xy - 6xy + 9y^2$ $4x^2 - 12xy + 9y^2$	17. Multiply. $(2x - 5)(4x^2 - 2x - 7)$ $8x^3 - 4x^2 - 14x - 20x^2 + 10x + 35$ $8x^3 - 24x^2 - 4x + 35$	18. What is the inverse of $f(x) = 3x - 5$ 1) Switch x & y 2) Solve for $x = 3y - 5$ $+5 \quad +5$ $\frac{x+5}{3} = \frac{3y}{3}$ 3) Replace with $f^{-1}(x)$ $y = \tfrac{1}{3}x + \tfrac{5}{3}$ $f^{-1}(x) = \tfrac{1}{3}x + \tfrac{5}{3}$

19. Find the value of the b^2-4ac discriminant and give the number and type of solutions. must = 0

$4x^2 - 8x = -3$ $a=4$ $b=-8$
  $+3$ $+3$ $c=3$

$4x^2 - 8x + 3 = 0$

$64 - [4(4)(3)]$

$64 - 48 = \boxed{16}$

$\boxed{2\,SOL}$

Pos # → 2 SOL
= 0 → 1 SOL
Neg # → 0 SOL

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must = 0

20. Use the quadratic formula to solve the equation $3y^2 + 7y = -3$

$3y^2 + 7y + 3 = 0$

$a = 3$
$b = 7$
$c = 3$

$\dfrac{-7 \pm \sqrt{49 - [4(3)(3)]}}{2(3)}$ -36

$\boxed{\dfrac{-7 \pm \sqrt{13}}{6}}$

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21. Solve $\dfrac{5(x-3)^2}{5} = \dfrac{75}{5}$

$(x-3)^2 = 15$

$\sqrt{(x-3)^2} = \sqrt{15}$

$x - 3 = \pm\sqrt{15}$
  $+3$ $+3$

$\boxed{x = 3 \pm \sqrt{15}}$

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22. a. Simplify $8^{2/3}$ Power
                                Root

$(\sqrt[3]{8})^2 =$

$2^2 = \boxed{4}$

b. Simplify $32^{2/5}$

$(\sqrt[5]{32})^2 = 2^2 = \boxed{4}$

c. Simplify $81^{\frac{3}{4}}$.

$(\sqrt[4]{81})^3 = 3^3 = \boxed{27}$

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23. You deposit \$1200 in an account that pays 3% annual interest. Find the balance after 5 years if the interest is compounded quarterly.

$A = P\left(1 + \dfrac{r}{n}\right)^{nt}$

$A = 1200\left(1 + \dfrac{.03}{4}\right)^{4(5)}$

$\boxed{A = \$1393.42}$

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24. Write the expression for the width of a rectangle whose area is given by $x^2 + 5x - 24$ and whose length is given by $x + 8$.

$A = (x^2 + 5x - 24)$

  L   W
$(x + 8)(x - 3)$

$A = LW$

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25. Let $f(x) = x^3$ and $g(x) = 3x + 2$. Find solutions of the equation $f(x) = g(x)$ by creating a table of integer values of x for $-2 \le x \le 3$ and finding the corresponding values of f and g. Be sure to clearly indicate all values from the table that are solutions of $f(x) = g(x)$.

x	f(x)=x³	g(x)=3x+2
-2	$-2^3 = (-8)$	$-6+2 = (-4)$
-1	$-1^3 = (-1)$	$-3+2 = (-1)$
0	$0^3 = (0)$	$0+2 = (2)$
1	$1^3 = (1)$	$3+2 = (5)$
2	$2^3 = (8)$	$6+2 = (8)$
3	$3^3 = (27)$	$9+2 = (11)$

Solution(s): x = $\boxed{-1, 2}$

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26. Write a system of inequalities to describe the graph.
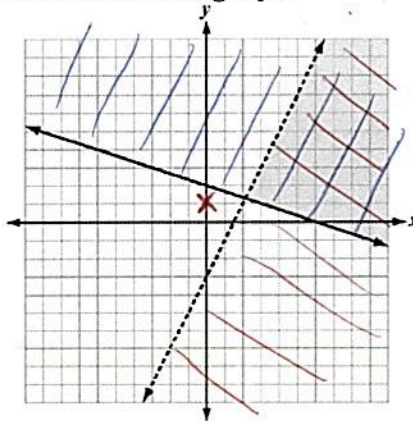
$y < 2x - 3$ $1 < -3$ F

$y \ge \frac{1}{3}x + 2$ $1 \ge 2$ F

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27. Graph all solutions of the inequality $y \ge \frac{2}{3}x - 4$

$1 \ge -4$ True