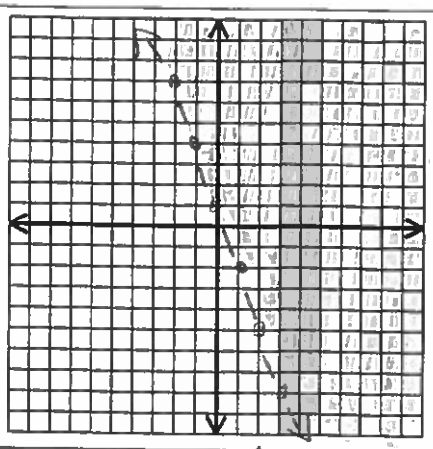
NAME Answers DATE_____ PERIOD_____

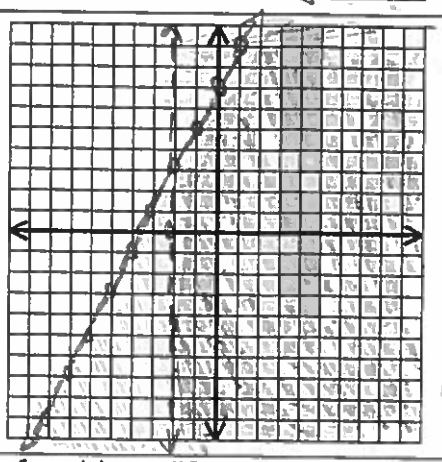
ALGEBRA 1 REVIEW FOR SPRING SEMESTER EXAM

Graph the inequalities below and shade the solution.

1. $y > -3x + 1$



2. $x > -2$
   $y \leq 2x + 7$



3. Circle the following points that are in the solution set of problem #2.

(-5,-6) **(-7,2)** **(1,4)** **(-1,8)** **(3,-4)**

Simplify the following problems.

4. $(2x^4)(5x^3) =$ $10x^7$

5. $(4x^7)(2x^4) - (6x^6)(5x^5) =$ $-22x^{11}$
   $8x^{11} - 30x^{11}$

6. $(x + 2)(x - 3) =$ $x^2 - x - 6$

7. $(3x - 2)(2x + 3) =$ $6x^2 + 5x - 6$
   $6x^2 + 9x - 4x - 6$

8. $4t(2t^2 - t - 5) =$ $8t^3 - 4t^2 - 20t$

9. $2x^2y(2x^2 - 3xy + y^2) =$ _____
   $4x^4y - 6x^3y^2 + 2x^2y^3$

$\sqrt{100}$ -5

10. $(-4c^3)^3 =$ $-64c^9$

$(-4)^3 c^9$

11. $(4x^2y)^2(-3xy^2)^3 =$ $-432x^7y^8$

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

16 $\quad -27$

12. Find the volume of this solid.

v $6a^3$

$a \cdot 3a \cdot 2a$

Simplify.

13. $\dfrac{32a^2bc^3}{20abc} =$ $\dfrac{8ac^2}{5}$

$\dfrac{32}{20} = \dfrac{8}{5}$

14. $\dfrac{6c^3d}{3cd} =$ $2c^2$

FACTOR COMPLETELY.

15. $18x - 12y + 36$ _____

$6(3x - 2y + 6)$

16. $64x^2 - 25y^2$ $(8x+5y)(8x-5y)$

$8x \quad 8x \quad 5y \quad 5y$

17. $x^2 + 20x + 36$ $(x+2)(x+18)$

18. $r^2 + 7r - 18$ $(r+9)(r-2)$

challenge problem (good bonus)

19. $3p^2 + 7p - 6$ $(3p-2)(p+3)$ -18 $9 \quad -2 = 7$ $(3p^2+9p)+(-2p-6)$ $3p(p-3)+2(p-3)$ $(3p-2)(p+3)$	20. $2x^2 - 15xy + 7y^2$ $(x-7y)(2x-y)$ $14x^2y^2$ $-14xy + -1xy$ $(2x^2-1xy)(-14xy+7y^2)$ $x(2x-y)-7y(2x-y)$ $(x-7y)(2x-y)$
21. $5a^2 - 20b^2$ _____ $5(a^2-4b^2) \leftarrow$ diff of 2 squares $\boxed{5(a+2b)(a-2b)}$	22. $6n^3 - 21n^2 - 45n$ $3n(2n+3)(n-5)$ $3n(2n^2-7n-15)$ -30 $(2n^2-10n)+(3n-15)$ $-10 \quad 3 \quad -7$ $2n(n-5)+3(n-5)$ $3n(2n+3)(n-5)$

What are the solutions.

23. $(n + 1)(n + 9) = 0$	-1 or -9
24. $(4x + 1)(x - 5) = 0$	5 or $-1/4$
25. $x^2 + 14x + 48 = 0$ $(x+6)(x+8)=0$	-6 or -8
26. $3a^2 + 4a = 4$ $3a^2+4a-4=0$ $(3a^2+6a)(-2a-4)$ $3a(a+2)-2(a+2)$	-2 or $2/3$ $(3a-2)(a+2)$

Solve using the **Quadratic Formula.** Round your answers to the nearest tenth.

27. $6x^2 - 5x - 2 = 0$

$$\frac{5 \pm \sqrt{(-5)^2 - 4(6)(-2)}}{12}$$

Answers: 1.1 or $-.3$

28. $x^2 + 8x + 3 = 0$ a = 1 b = 8 c = 3

$$\frac{-8 \pm \sqrt{8^2 - 4(1)(3)}}{2(1)}$$

Answers: -.4 or -7.6

29. $6x^2 = 1 - 4x$ a = 6 b = 4 c = -1

$$\frac{-4 \pm \sqrt{4^2 - 4(6)(-1)}}{2(6)}$$

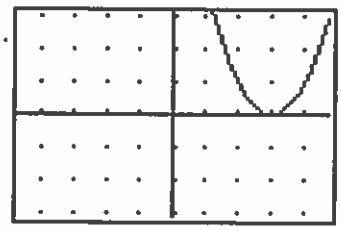
Answers: .2 or -.9

30. Find the missing factor: $48p^5q^4 = (2pq^2)(4pq)$__?__

ANSWER: $6p^3q$

What are the solution(s)?

31.



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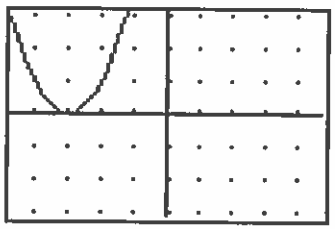
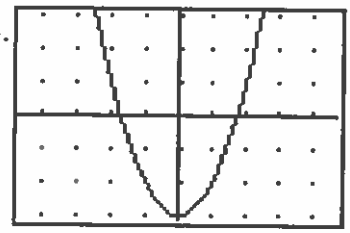
32.



-3

33.



-2 or 2

Write the equation for the parabola: $y = x^2$

34. Shifts up 4 units **ANSWER:** $y = x^2 + 4$

35. Make parent function wider **ANSWER:** $y = \frac{1}{2}x^2$ $a < 1$

36. Tiger Woods hits a golf ball into the air The equation that describes the path of the ball is $h = 55t - 5t^2$. Answer the folowing questions using the information given.

A. 90ft How high is the ball after **2 seconds**?

B. 4 sec When will it **first** reach 140 meters?

C. 11 sec When will it hit the **ground**?

-10 8

37. At which points does the graph of $f(x) = x^2 + 2x - 48$ intersect the x-axis? 6 or -8

38. For the function $y = 4x^2 + 3x - 1$, what is the value of y when $x = -3$? 26

39. What is the vertex of $y = 4x^2 + 3x - 1$? $\frac{-3}{2(4)}$ $\left(\frac{-3}{8}, \frac{-25}{16}\right)$

40. EVALUATE: $\frac{a^2 + b}{2c}$ where $a = -1$, $b = 7$, and $c = 2$.

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