Algebra 1 Name_____ ID: 1

Assignment

Date_____ Period____

Simplify. Your answer should contain only positive exponents.

1) $\left(\frac{2x^{0} \cdot 2x^{-2}}{xy^{-4}}\right)^{-3}$

2) $\frac{m}{\left(mn^{-2}\right)^{-2} \cdot 2nm^{2}}$

3) $\frac{\left(yx^{-1}\right)^{4}}{x^{3} \cdot 2x^{0}y^{-1}}$

4) $\frac{2m^{2}n^{3} \cdot \left(nm^{2}\right)^{0}}{m^{4}}$

Simplify.

5) $-3\sqrt{32}$

6) $-5\sqrt{125}$

7) $\sqrt{x^{4}y^{3}}$

8) $\sqrt{20x^{5}y^{4}}$

9) $\sqrt{\frac{45}{24}}$

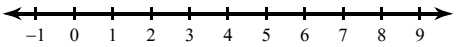
10) $\sqrt{\frac{15}{98}}$

11) $3\sqrt{10}\left(\sqrt{10} + \sqrt{2}\right)$

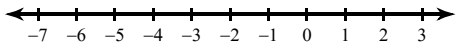
12) $-\sqrt{10}\left(4 + \sqrt{2}\right)$

Solve each inequality and graph its solution.

13) $-2b + 7b \geq 20$



14) $-20 < 3n + 7n$



Solve each equation.

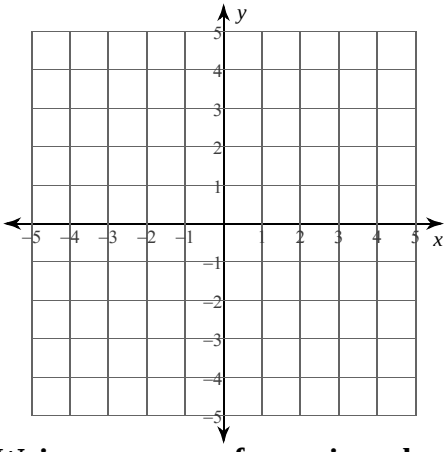
15) $10 + 8\left|5 - 8p\right| = 50$

16) $4 - 4\left|6 + 2n\right| = -28$

Sketch the solution to each system of inequalities.

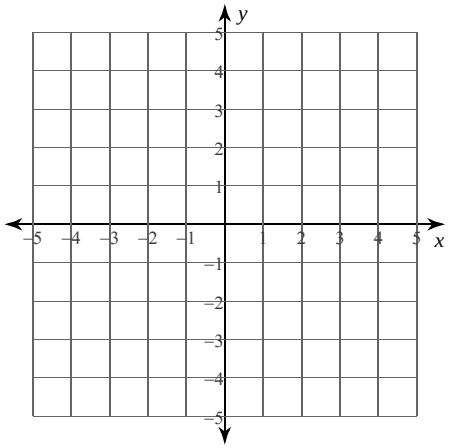
17) $y \geq -\frac{2}{3}x + 1$

$y < -\frac{2}{3}x - 3$



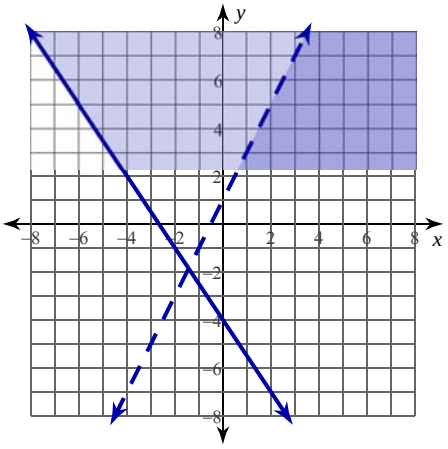
18) $y > -\frac{1}{2}x - 2$

$x \leq -2$



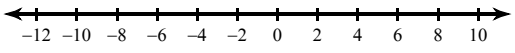
Write a systems of equations that defines the dark shaded region.

19)

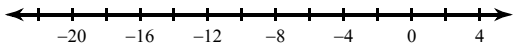


Solve each inequality and graph its solution.

20) $|9a| \geq 63$



21) $|v + 9| < 10$



Solve each system.

22) $10x - 2y = -20$
$-x + 4y = -17$

23) $6x - 10y = 2$
$3x - 2y = -14$

24) $2x + y = 21$
$-2x + 6y = 14$

25) $x - y = 11$
$-2x - 4y = 2$

Simplify each polynomial.

26) $(5 - 6n^3 - n^4) - (3n^3 + 4n^4 - 1)$

27) $(4x^4 + 5 - 2x) + (4 - x + 6x^3)$

Find each product.

28) $(7p + 6)(3p - 3)$

29) $(6k - 5)(6k^2 - 2k - 5)$

30) $(2n + 6)^2$

Factor each completely.

31) $72n^3 + 24n^2 - 80n$

32) $7k^5 + 28k^3 + 21k^2$

33) $x^2 - 19x + 90$

34) $16x^2 + 156x - 40$

35) $9r^2 - 39r - 30$

36) $5r^2 + 25r - 30$

37) $25x^2 - 9$

Solve each equation.

38) $x^2 - 2 = -8$

39) $p^2 + 10 = 74$

40) $3k^2 - 2 = -2k$

41) $a^2 - 5 = 3a$

Solve each equation. Remember to check for extraneous solutions.

42) $\sqrt{x + 2} = 3$

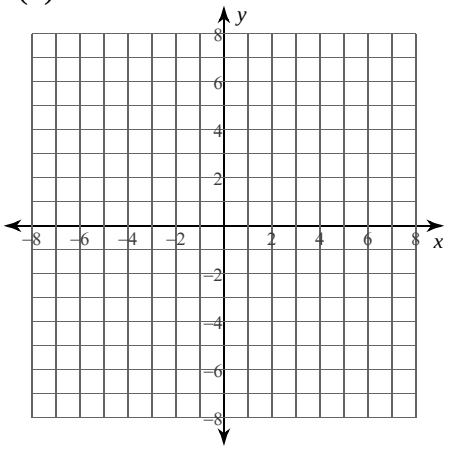
43) $7 = -2 + \sqrt{r - 5}$

44) Brenda and Ted each improved their yards by planting daylilies and geraniums. They bought their supplies from the same store. Brenda spent $73 on 7 daylilies and 3 geraniums. Ted spent $117 on 3 daylilies and 12 geraniums. What is the cost of one daylily and the cost of one geranium?

45) The senior classes at High School A and High School B planned separate trips to the state fair. The senior class at High School A rented and filled 12 vans and 14 buses with 626 students. High School B rented and filled 4 vans and 2 buses with 126 students. Each van and each bus carried the same number of students. How many students can a van carry? How many students can a bus carry?

Find the vertex, axis of symmetry and zeroes of each function and graph it.

46) f(x)= $x^2 - 5x + 6$



47) f(x) = $(2x - 3)(2x + 5)$