

Honors Algebra 2 PRACTICE Final

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Simplify.

1) $\sqrt{75x^4y^2}$

2) $\sqrt{20xy^2}$

3) $\frac{2\sqrt{3}}{\sqrt{12}}$

Write each expression in radical form.

4) $(3x)^{\frac{5}{4}}$

Write each expression in exponential form.

5) $\frac{1}{\sqrt[5]{b}}$

Simplify.

6) $(4\sqrt{5} - 2\sqrt{3})(\sqrt{5} + \sqrt{3})$

7) $3\sqrt{45} - 3\sqrt{3} - 3\sqrt{27}$

8) $\frac{5\sqrt{3}}{3 - \sqrt{3}}$

9) $\left(\frac{uv}{v^{-4} \cdot u^4 v^4}\right)^{-2}$

10) $\left(\frac{xy}{x \cdot yx^{\frac{5}{3}}}\right)^{\frac{1}{4}}$

11) $(m^{15})^{\frac{3}{5}}$

Solve each equation. Remember to check for extraneous solutions.

12) $-30 = -6\sqrt{5m - 5}$

13) $11 = 7 + \sqrt{1 - 15r}$

14) $\sqrt{2v + 22} = v - 1$

Evaluate each expression.

15) $\log_9 3$

16) $\log_5 \frac{1}{125}$

Solve each equation by changing the base.

17) $27^{-3x} = 9^{3-3x}$

18) $32^{3k} = \left(\frac{1}{8}\right)^{-2k}$

Simplify each expression.

19) $\frac{3b+12}{b^2+8b+16}$

20) $\frac{x+7}{x+4} \cdot \frac{6x^3+24x^2}{4}$

21) $\frac{9n+90}{9n-45} \div \frac{8n}{n-5}$

22) $\frac{6n}{n+3} + \frac{3}{5n-3}$

23) $\frac{2a}{2} + \frac{2}{15a-3}$

24) $\frac{\frac{u^2}{16}}{\frac{1}{4} - \frac{12}{u}}$

25) $\frac{\frac{25}{a}}{a-3}$

Solve each equation. Remember to check for extraneous solutions.

26) $\frac{1}{x} = \frac{6}{x^2} + \frac{3x+3}{x^2}$

27) $\frac{a+3}{a^3+6a^2} = \frac{1}{2a^2+12a} - \frac{3a-15}{a^2}$

Solve any way you want (complete the square, factor, quadratic formula, square root both sides).

28) $5k^2 + 10k - 17 = -2$

29) $p^2 = 7p$

30) $3x^2 - 7x = 0$

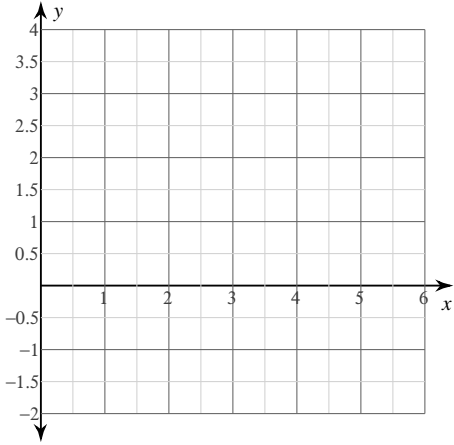
31) $n^2 - 8 = -17$

32) $9m^2 + 11m + 1 = 0$

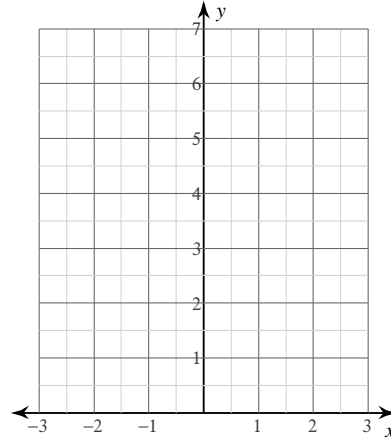
33) $r^2 = -4r - 4$

Sketch the graph of each function and identify the Vertex.

34) $y = x^2 - 6x + 8$



35) $f(x) = (x + 1)^2 + 2$



Condense each expression to a single logarithm.

36) $6\log_2 a - 3\log_2 b$

Expand each logarithm.

37) $\log_2 \frac{5^6}{3^2}$

Solve each equation.

38) $\log_7 (x^2 + 8) - \log_7 4 = \log_7 6$

39) $\log_8 -3x + \log_8 2 = \log_8 79$

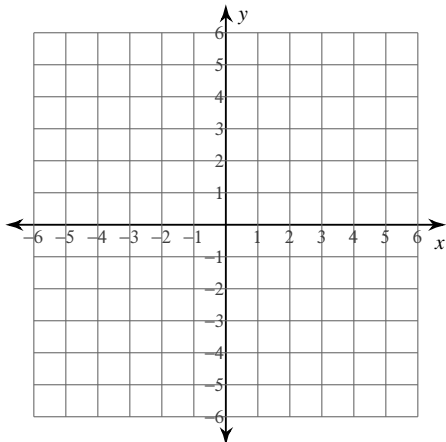
Solve each equation using logarithms.

40) $20^{-8p} + 10 = 17$

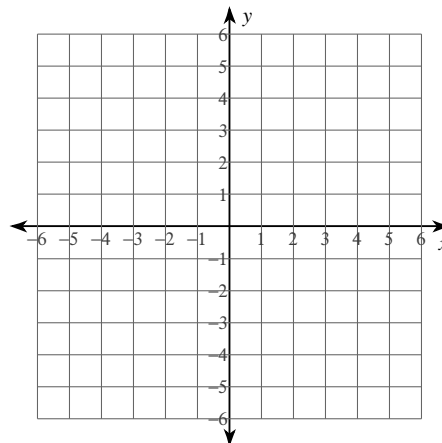
41) $18^{a+4} - 5 = 84$

Sketch the graph of each line.

42) $2x + 5y = -25$



43) $y = \frac{1}{4}x - 1$



- 44) Jenny's school is selling tickets to a choral performance. On the first day of ticket sales the school sold 6 adult tickets and 5 child tickets for a total of \$105. The school took in \$219 on the second day by selling 12 adult tickets and 11 child tickets. Find the price of an adult ticket and the price of a child ticket.

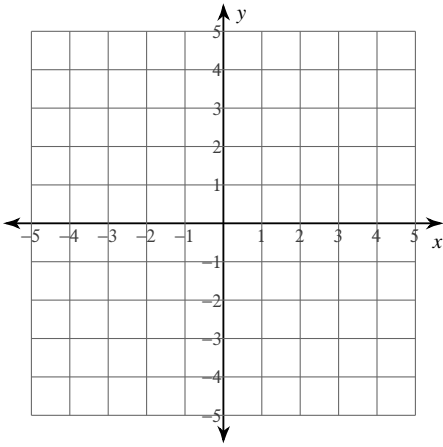
Write the slope-intercept form of the equation of the line through the given points.

- 45) through: $(-5, -2)$ and $(0, 0)$

Sketch the solution to each system of inequalities.

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

$$y \leq -\frac{5}{2}x - 2$$



Solve.

47) $x^4 - 9x^2 + 8 = 0$

Simplify.

48) $(8 + 6i)^2$

Divide.

49) $(27b^4 + 9b^3 + 9b^2) \div 9b$

Answers to Honors Algebra 2 PRACTICE Final

1) $5x^2y\sqrt{3}$

2) $2y\sqrt{5x}$

3) 1

4) $(\sqrt[4]{3x})^5$

5) $b^{-\frac{1}{5}}$

6) $14 + 2\sqrt{15}$

7) $9\sqrt{5} - 12\sqrt{3}$

8) $\frac{5\sqrt{3} + 5}{2}$

9) $\frac{u^6}{v^2}$

10) $\frac{x^{\frac{7}{12}}}{x}$

11) m^9

12) {6}

13) {-1}

14) {7}

15) $\frac{1}{2}$

16) -3

17) {-2}

18) {0}

19) $\frac{3}{b+4}; \{-4\}$

20) $\frac{3x^2(x+7)}{2}$

21) $\frac{n+10}{8n}$

22) $\frac{30n^2 - 15n + 9}{(5n-3)(n+3)}$

23) $\frac{15a^2 - 3a + 2}{3(5a-1)}$

24) $\frac{u^3}{4u-192}$

25) $\frac{25a-75}{a^2}$

26) $\left\{-\frac{9}{2}\right\}$

27) $\left\{\frac{29}{6}\right\}$

28) {1, -3}

29) {7, 0}

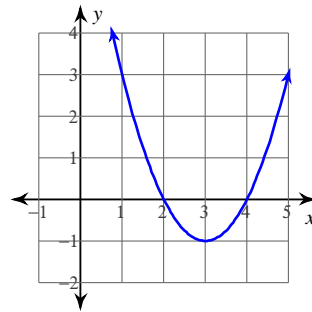
30) $\left\{\frac{7}{3}, 0\right\}$

31) {3i, -3i}

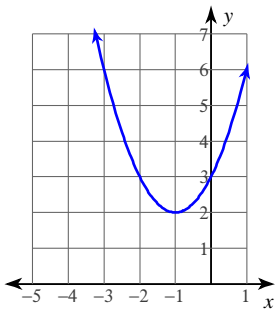
32) $\left\{\frac{-11 + \sqrt{85}}{18}, \frac{-11 - \sqrt{85}}{18}\right\}$

33) {-2}

34)



35)



36) $\log_2 \frac{a^6}{b^3}$

37) $6 \log_2 5 - 2 \log_2 3$

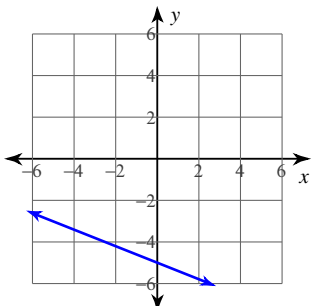
38) {4, -4}

39) $\left\{-\frac{79}{6}\right\}$

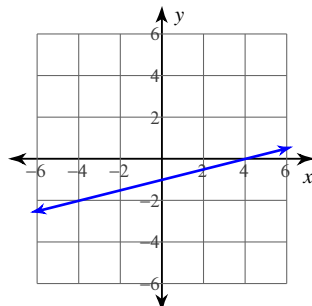
40) -0.0812

41) -2.447

42)



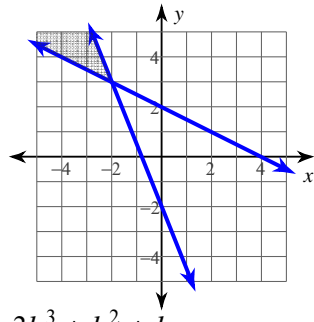
43)



44) adult ticket: \$10, child ticket: \$9

45) $y = \frac{2}{5}x$

46)



47) $1, -1, 2\sqrt{2}, -2\sqrt{2}$

48) $28 + 96i$

49) $3b^3 + b^2 + b$