Review Sheet for Test #1

Factor Completely

1) $14c^{12}d + 12c^8d^3$

2) $62x^2y^2 - 38x^5y^9$

3) $100x^8 - y^{24}$

4) $36x^{36} - 25y^{10}$

5) $10x^2 - 9x + 2$

6) $7x^2 - 26x - 8$

Find the roots.

7) $y = x^2 - 16x + 28$

8) $y = x^2 + 4x - 45$

Graph the equation.

9) $5y + 15 = -x$

10) $y - 2x = 10$

11) Write the equation ($y = mx + b$ form) of the line satisfying the given conditions; the line contains the point $(5, -2)$ and is perpendicular to $4x + 3y = -6$.

12) Write the equation ($y = mx + b$ form) of the line satisfying the given conditions; the line contains the points $(-2, 3)$ and $(4, 6)$.

Simplify and express your answer without negative exponents.

13) $\left(\frac{7a^3b^{-5}}{3a^{-6}b^{-3}}\right)^{-3}$

14) $\left(\frac{8x^{-4}y^6}{5x^{-10}y^{-5}}\right)^2$

Perform the indicated operation and express in simplest form.

15) $2x^2\sqrt{20xy^3} + 4y\sqrt{80x^5y}$

16) $6\sqrt{32x^{14}y^{11}} - 9x^4y^2\sqrt{50x^6y^7}$

Rationalize the denominator.

17) $\frac{9}{\sqrt{5}+7}$

18) $\frac{24}{10-\sqrt{22}}$

Expand the logarithm.

19) $log\left(\frac{\sqrt{z^9}}{x^4y^{13}}\right)$

20) $log\left(\sqrt{\frac{x^{17}}{z^5y}}\right)$

Solve for x without using a calculator.

21) $log_4(64) = 8x - 10$

22) $log_5\left(\frac{1}{25}\right) = 2x$

Translate to radical notation and then evaluate.

23) $32^{\frac{2}{5}}$

24) $4^{\frac{3}{2}}$

Solve the system of equations.

25) $2y = x - 6$
$4x + y = -3$

26) $2x - 5y = 7$
$3x - 10y = 13$

27) $4x + 4y + z = 24$
$2x - 4y + z = 0$
$5x - 4y - 5z = 12$

28) The population of Ababwa can be modeled by $P(t) = 24(1 + .021)^t$, where P(t) is in thousands and t is the number of years since 754.
a) Predict the population of Ababwa in 772. Round to the nearest whole person.
b) In what year will the population of Ababwah reach 63,000?

Answer Key

1) $2c^8d(7c^4 + 6d^2)$

2) $2x^2y^2(31 - 19x^3y^7)$

3) $(10x^4 - y^{12})(10x^4 + y^{12})$

4) $(6x^{18} + 5y^5)(6x^{18} - 5y^5)$

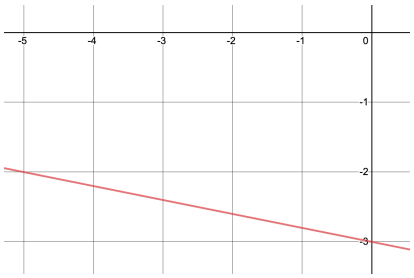
5) $(5x - 2)(2x - 1)$

6) $(7x + 2)(x - 4)$

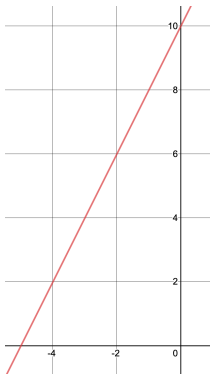
7) $x = 14,\ x = 2$

8) $x = -9, x = 5$

9)



10)



11) $y = \frac{3}{4}x - \frac{23}{4}$

12) $y = \frac{1}{2}x + 4$

13) $\frac{27b^6}{343a^{27}}$

14) $\frac{64x^{12}y^{22}}{25}$

15) $20x^2y\sqrt{5xy}$

16) $-21x^7y^5\sqrt{2y}$

17) $\frac{-9(\sqrt{5}-7)}{44}$

18) $\frac{4(10+\sqrt{22})}{13}$

19) $\frac{9}{2}Log(z) - 4Log(x) - 13Log(z)$

20) $\frac{17}{2}Log(x) - \frac{5}{2}Log(z) - \frac{1}{2}Log(y)$

21) $x = \frac{13}{8}$

22) $x = -1$

23) $\sqrt[5]{32^2} = \left(\sqrt[5]{32}\right)^2 = 4$

24) $\sqrt[2]{4^3} = 8$

25) $(0, -3)$

26) $(1, -1)$

27) $(4, 2, 0)$

28) a) 34,888

b) $754 + 46 = year\ 800$

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