

Algebra 3 Assignment # 5

Exponential Equations

(1) Solve for x please.

(a) $4^{x+1} = 8^x$

(b) $5^{x+3} = \frac{1}{25}$

(c) $2^{2x-1} = 8^{x-7}$

(d) $9^{x^2-2x} = 27^{x^2+1}$

(e) $\left(\frac{1}{4}\right) \cdot 8^{2x-1} = 16^{1-x}$

(f) $\left(x^2 - 1\right)^{\frac{4}{3}} = 16$

(g) $x^{-\frac{3}{2}} = \frac{27}{8}$

(h) $2^{2x} - 13 \cdot 2^x - 48 = 0$

(i) $27^{2x} - 10 \cdot 27^x + 9 = 0$

(j) $16^x - 10 \cdot 4^x + 16 = 0$

(2) Sketch a graph of each of the following.

(a) $y = 3^x$

(b) $y = 3^{-x}$

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Answers

(1) **(a)** 2

(b) -5

(c) 20

(d) $-1, -3$

(e) $\frac{7}{6}$

(f) ± 3

(g) $\frac{4}{9}$

(h) 4

(i) $0, \frac{2}{3}$

(j) $\frac{1}{2}, \frac{3}{2}$