

F.LE.A.4: Exponential Equations 1

- 1 The solution set of $2^{x+1} = 8$ is
 - 1) $\{\}$
 - 2) $\{2\}$
 - 3) $\{3\}$
 - 4) $\{4\}$

- 2 If $2^{4x+1} = 8^{x+a}$, which expression is equivalent to x ?
 - 1) $a - 1$
 - 2) $3a - 1$
 - 3) $\frac{a-1}{15}$
 - 4) $\frac{a-1}{3}$

- 3 The solution set of $2^{x^2+2x} = 2^{-1}$ is
 - 1) $\{1\}$
 - 2) $\{-1\}$
 - 3) $\{-1, 1\}$
 - 4) $\{\}$

- 4 The solution set of $4^{x^2+4x} = 2^{-6}$ is
 - 1) $\{1, 3\}$
 - 2) $\{-1, 3\}$
 - 3) $\{-1, -3\}$
 - 4) $\{1, -3\}$

- 5 If $2^{(16x^2 - 8x - 3)} = 1$, what does x equal?
 - 1) $\frac{1}{4}$, only
 - 2) $\frac{3}{4}$, only
 - 3) $\frac{1}{4}$ and $-\frac{3}{4}$
 - 4) $-\frac{1}{4}$ and $\frac{3}{4}$

- 6 Solve for x : $2 = 2^{2x+1}$

- 7 Solve for x : $2^{x+3} = 64$

- 8 If $25 - 3^2 = 2^x$, what is the value of x ?

- 9 Solve for y : $2^{(y-3)} = \frac{1}{16}$

- 10 Solve for x : $\frac{1}{16} = 2^{3x-1}$

- 11 Solve for x : $2^{x+2} = 4^{x-1}$

12 If $4^{2x} = 2^{3x+2}$, find the value of x .

21 Solve for x : $8^{\frac{1}{3}} = 2^{x+1}$

13 Solve for x : $4^{3x} = 2^{x+5}$

22 Solve for x : $2^{2x} = 8^{5-x}$

14 If $4^x = 2^{3x+1}$, find the value of x .

23 Solve for x : $8^x = 2^{(x+6)}$

15 Solve for x : $4^4 = 2^{3x-1}$

24 Solve for x : $4^{(3x+5)} = 16$

16 Solve for x : $2^{3x} = 4^{x-1}$

17 Solve for x : $2^{4x-1} = 4^x$

18 Solve for x : $4^{2x} = 2^{(6x-8)}$

19 If $8^{2x} = 2^{x+5}$, what is the value of x ?

20 Solve for x : $8^{x-2} = 2^x$

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Answer Section

1 ANS: 2 REF: 019916siii

2 ANS: 2

$$2^{t+1} = 8^{t+a}$$

$$2^{t+1} = (2^3)^{t+a}$$

$$2^{t+1} = 2^{3t+3a}$$

$$4x+1 = 3x+3a$$

$$x = 3a - 1$$

REF: 060814b

3 ANS: 2

$$2^{x^2+2x} = 2^{-1}$$

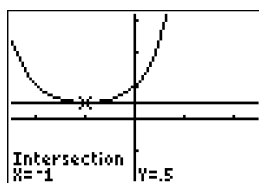
$$x^2 + 2x = -1$$

$$x^2 + 2x + 1 = 0$$

$$(x+1)(x+1) = 0$$

$$x = -1$$

Plot1	Plot2	Plot3
Y1	2^(X^2+2X)	
Y2	.5	
Y3	=	
Y4	=	
Y5	=	
Y6	=	
Y7	=	



REF: 060612b

4 ANS: 3

$$4^{x^2+4x} = 2^{-6} \quad 2x^2 + 8x = -6$$

$$(2^2)^{x^2+4x} = 2^{-6} \quad 2x^2 + 8x + 6 = 0$$

$$2^{2x^2+8x} = 2^{-6} \quad x^2 + 4x + 3 = 0$$

$$(x+3)(x+1) = 0$$

$$x = -3 \quad x = -1$$

REF: 061015a2

5 ANS: 4

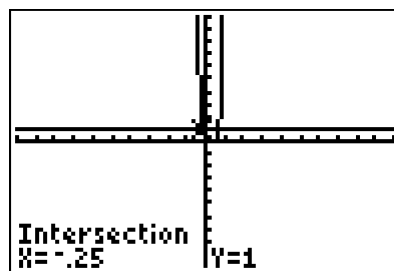
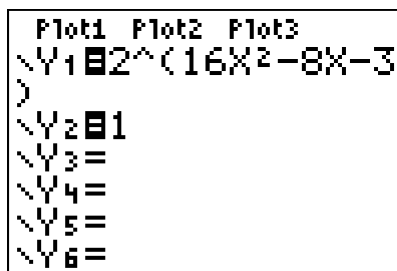
$$2^{(16x^2-8x-3)} = 1$$

$$2^{(16x^2-8x-3)} = 2^0$$

$$16x^2 - 8x - 3 = 0$$

$$(4x + 1)(4x - 3) = 0$$

$$x = -\frac{1}{4} \quad x = \frac{3}{4}$$



REF: 080819b

6 ANS:
0

REF: 018706siii

7 ANS:
3

REF: 068901siii

8 ANS:
4

REF: 010101siii

9 ANS:
-1

REF: 019810siii

10 ANS:
 $2^{-4} = 2^{3x-1}$
 $-4 = 3x - 1$
 $-3 = 3x$
 $-1 = x$

REF: 081529a2

11 ANS:
4

REF: 089609siii

12 ANS:
2

REF: 018415siii

- 13 ANS:
1
REF: 068416siii
- 14 ANS:
-1
REF: 088410siii
- 15 ANS:
3
REF: 018906siii
- 16 ANS:
-2
REF: 089309siii
- 17 ANS:
 $\frac{1}{2}$
REF: 060107siii
- 18 ANS:
4
REF: 080204siii
- 19 ANS:
1
REF: 088506siii
- 20 ANS:
3
REF: 088608siii
- 21 ANS:
0
REF: 068707siii
- 22 ANS:
3
REF: 019406siii
- 23 ANS:
3
REF: 069607siii
- 24 ANS:
-1
REF: 069704siii