Determine whether the ordered pair is a solution of the system of linear equations.

1) \[
\begin{align*}
x + y &= 0 \\
x - y &= 12
\end{align*}
\]; \((6, -6)\)
- A) Yes
- B) No

2) \[
\begin{align*}
3x &= -13 - y \\
2x &= -18 - 3y
\end{align*}
\]; \((3, -4)\)
- A) Yes
- B) No

3) \[
\begin{align*}
3x - 1 &= -1 - y \\
-9x + 3y &= -6
\end{align*}
\]; \(\left(\frac{1}{3}, -1\right)\)
- A) Yes
- B) No

Solve the system of equations by graphing.

4) \[
\begin{align*}
x + y &= 11 \\
x - 4y &= -14
\end{align*}
\]
- A) \((6, -5)\)
- B) \((5, 6)\)
- C) \((5, -6)\)
- D) \((6, 5)\)

5) \[
\begin{align*}
2x + y &= -16 \\
x - 3y &= 6
\end{align*}
\]
- A) \((-6, -4)\)
- B) \((-4, 6)\)
- C) \((-4, -6)\)
- D) \((-6, 4)\)
6) \[ \begin{aligned} x &= -y \\ y + x &= 6 \end{aligned} \] 

A) \((1, 5)\) B) \((x, y) | x = -y\) C) \(\emptyset\) D) \((1, 1)\)

7) \[ \begin{aligned} 3x + y &= 8 \\ 3x + y &= 14 \end{aligned} \]

A) \((x, y) | 3x + y = 8\) B) \((4, 5)\) C) \((6, 2)\) D) \(\emptyset\)

Solve the system of equations using substitution.

8) \[ \begin{aligned} x + y &= -4 \\ y &= -3x \end{aligned} \] 

A) \((2, 6)\) B) \((-2, -6)\) C) \((-2, 6)\) D) \((2, -6)\)

9) \[ \begin{aligned} 3x - 1y &= 7 \\ x &= -2y \end{aligned} \] 

A) \((-1, 2)\) B) \((-1, 2)\) C) \((-2, -1)\) D) \((2, 1)\)

10) \[ \begin{aligned} x + 6y &= 11 \\ 8x + 5y &= 2 \end{aligned} \] 

A) \((-1, 2)\) B) \((-2, 3)\) C) \(\emptyset\) D) \((1, 3)\)

11) \[ \begin{aligned} x - 3y &= -21 \\ 8x - 2y &= -14 \end{aligned} \] 

A) \(\emptyset\) B) \((1, 6)\) C) \((-7, 0)\) D) \((0, 7)\)

12) \[ \begin{aligned} x - 4y &= -6 \\ 2x - 3y &= -12 \end{aligned} \] 

A) \((-5, -6)\) B) \((6, -1)\) C) \((-6, 0)\) D) \(\emptyset\)
Solve the system of equations using elimination.

13) \[
\begin{aligned}
2x + 5y &= -18 \\
-2x - 10y &= 38
\end{aligned}
\]
A) \((-2, -4)\) \hspace{1cm} B) \((2, 4)\) \hspace{1cm} C) \((1, -4)\) \hspace{1cm} D) \((-1, 4)\)

14) \[
\begin{aligned}
x + 4y &= -19 \\
8x + 3y &= -7
\end{aligned}
\]
A) \((-1, -4)\) \hspace{1cm} B) \((1, -5)\) \hspace{1cm} C) \(\emptyset\) \hspace{1cm} D) \((0, -4)\)

15) \[
\begin{aligned}
5x + 4y &= 34 \\
2x + 4y &= 40
\end{aligned}
\]
A) \((4, -11)\) \hspace{1cm} B) \((5, -11)\) \hspace{1cm} C) \((-2, 11)\) \hspace{1cm} D) \(\emptyset\)

16) \[
\begin{aligned}
x - 3y &= 0 \\
-6x - 3y &= -21
\end{aligned}
\]
A) \((3, 1)\) \hspace{1cm} B) \(\emptyset\) \hspace{1cm} C) \((1, 3)\) \hspace{1cm} D) \((-1, 3)\)

Solve the system of equations using either substitution or elimination.

17) \[
\begin{aligned}
\frac{1}{5}x + \frac{1}{5}y &= 1 \\
x - y &= -3
\end{aligned}
\]
A) \((1, 4)\) \hspace{1cm} B) \(\emptyset\) \hspace{1cm} C) \((-1, 5)\) \hspace{1cm} D) \((0, 5)\)

18) \[
\begin{aligned}
\frac{1}{3}x + \frac{1}{3}y &= 1 \\
\frac{1}{5}x - \frac{1}{5}y &= -1
\end{aligned}
\]
A) \((-2, 5)\) \hspace{1cm} B) \(\emptyset\) \hspace{1cm} C) \((-1, 4)\) \hspace{1cm} D) \((1, 5)\)

Classify the system as consistent or inconsistent, and dependent or independent.

19) \[
\begin{aligned}
x + 4y &= 30 \\
2x - 2y &= 0
\end{aligned}
\]
A) Inconsistent and independent \hspace{1cm} B) Consistent and dependent \hspace{1cm} C) Inconsistent and dependent \hspace{1cm} D) Consistent and independent

20) \[
\begin{aligned}
x + 6y &= 39 \\
2x + 12y &= 78
\end{aligned}
\]
A) Inconsistent and independent \hspace{1cm} B) Consistent and independent \hspace{1cm} C) Consistent and dependent \hspace{1cm} D) Inconsistent and dependent

21) \[
\begin{aligned}
x + y &= -15 \\
x - y &= 1
\end{aligned}
\]
A) Inconsistent and dependent \hspace{1cm} B) Consistent and independent \hspace{1cm} C) Consistent and dependent \hspace{1cm} D) Inconsistent and independent

22) \[
\begin{aligned}
x + y &= 9 \\
2x - 2y &= 9
\end{aligned}
\]
A) Consistent and independent \hspace{1cm} B) Consistent and dependent \hspace{1cm} C) Inconsistent and dependent \hspace{1cm} D) Inconsistent and independent
Tell how many solutions the system has. Do not actually solve.

23) \[2x - y = 5\]
\[-4x + 2y = -18\]
A) One solution  
B) No solution  
C) Infinitely many

24) \[3x = y + 3\]
\[6x - 2y = 3\]
A) One solution  
B) Infinitely many  
C) No solution

25) \[x + 2y = 0\]
\[y = \frac{1}{2}x\]
A) One solution  
B) Infinitely many  
C) No solution

Solve the problem.

26) The graphs below represent the supply and demand for a product at various prices per unit. At approximately what price does supply equal demand?  

A) $400  
B) $650  
C) $177  
D) $900

27) A company manufactures three products. The graph shows the production from 1986 to 1996. What was the approximate level of production when the production of B equaled the production of C?  

A) 700,000  
B) 800,000  
C) 400,000  
D) 500,000

Solve the system of equations.

28) \[
\begin{align*}
\frac{5}{y} + \frac{6}{x} &= -\frac{13}{10} \\
\frac{7}{y} + \frac{7}{x} &= -\frac{21}{10}
\end{align*}
\]
A) \(\left\{\frac{1}{5}, -\frac{1}{2}\right\}\)  
B) \((5, 2))\)  
C) \((5, -2))\)  
D) \(\emptyset\)
Solve the problem.

29) The perimeter of a triangle is 75 cm. The triangle is isosceles now, but if its base were lengthened by 2 cm and each leg were shortened by 7 cm, it would be equilateral. Find the length of the base of the original triangle.
   A) 21 cm  
   B) 18 cm  
   C) 28 cm  
   D) 19 cm

30) The perimeter of a triangle is 73 cm. The triangle is isosceles now, but if its base were lengthened by 5 cm and each leg were shortened by 3 cm, it would be equilateral. Find the length of the base of the original triangle.
   A) 27 cm  
   B) 18 cm  
   C) 24 cm  
   D) 19 cm

31) A flat rectangular piece of aluminum has a perimeter of 60 inches. The length is 6 inches longer than the width. Find the width.
   A) 24 inches  
   B) 30 inches  
   C) 12 inches  
   D) 18 inches

32) A merchant has coffee worth $60 a pound that she wishes to mix with 80 pounds of coffee worth $90 a pound to get a mixture that is worth $80 a pound. How many pounds (lb) of the $60 coffee should be used?
   A) 40 lb  
   B) 20 lb  
   C) 120 lb  
   D) 60 lb

33) A chemist needs 130 milliliters of a 62% solution but has only 44% and 70% solutions available. Find how many milliliters of each that should be mixed to get the desired solution.
   A) 90 mL of 44%; 40 mL of 70%  
   B) 45 mL of 44%; 85 mL of 70%  
   C) 45 mL of 44%; 90 mL of 70%  
   D) 40 mL of 44%; 90 mL of 70%
Answer Key
Testname: PPLSYSEQ

1) A
2) B
3) A
4) D
5) A
6) C
7) D
8) D
9) A
10) A
11) D
12) C
13) C
14) B
15) C
16) A
17) A
18) C
19) D
20) C
21) B
22) A
23) B
24) C
25) B
26) B
27) A
28) C
29) D
30) D
31) C
32) A
33) D