Wolfram Problem Generator™

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> ALGEBRA > Complex number solutions

Printable Problem Sheet

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Difficulty level: Beginner ⇕

Printable Problem Sheet: Random Set

Difficulty: Beginner

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PROBLEMS   **ANSWER KEY**

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Name:

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ALGEBRA › Complex number solutions

Difficulty Level: Beginner

Occupation:

Organization:

1. Solve for x in the equation $x^2 - 14x + 85 = 0$.

- ● $x = 7 - 6i, 7 + 6i$
- ○ $x = -7 - 6i, -7 + 6i$
- ○ $x = -14 - 12i, -14 + 12i$
- ○ $x = 14 - 12i, 14 + 12i$

2. Solve for x

- ○ $x = -8$
- ○ $x = \frac{8}{7}$
- ● $x = 4$
- ○ $x = -4$
- $\frac{1}{14}\left(-56\right)$

Country:

3. Solve for q in the equation $-5q^2 + 10q - 25 = 0$.

- ● $q = 1 - 2i, 1 + 2i$
- ○ $q = -1 - 2i, \frac{1}{10}\left(-10 + 7i\sqrt{10}\right)$
- ○ $q = -\frac{2}{5} + \frac{4i}{5}, 2 + 4i$
- ○ $q = -2 + 4i, \frac{2}{5} + \frac{4i}{5}$

4. Solve for x $-5x^2 + 40$

- ○ $x = -4 - 4i,$ $\frac{1}{10}\left(-40 + 2i\sqrt{790}\right)$
- ○ $x = -8 + 8i, \frac{8}{5} + \frac{8i}{5}$
- ○ $x = -\frac{8}{5} + \frac{8i}{5}, 8 + 8i$
- ● $x = 4 - 4i, 4 + 4i$

5. Solve for y: $-y^2 + 14y - 58 = 0$.

- ○ $y = -7 - 3i, -7 + 3i$

6. Solve for u in the equation $3u^2 - 12u + 120 = 0$.

- $\bullet$ $y = 7 - 3i,\ 7 + 3i$
- $\circ$ $y = -14 + 6i,\ 14 + 6i$
- $\circ$ $y = -14 + 6i,\ 14 + 6i$

- $\circ$ $u = \frac{4}{3} + 4i,\ 4 - 12i$
- $\circ$ $u = -2 - 6i,\ -2 + 6i$
- $\bullet$ $u = 2 - 6i,\ 2 + 6i$
- $\circ$ $u = -4 - 12i,\ -\frac{4}{3} + 4i$

7. Solve for m: $2m^2 - 24m + 74 = 0$.
- $\circ$ $m = 6 + i,\ 12 - 2i$
- $\circ$ $m = -12 - 2i,\ -6 + i$
- $\circ$ $m = -6 + i,\ \frac{1}{4}\left(-24 - 2i\sqrt{154}\right)$
- $\bullet$ $m = 6 - i,\ 6 + i$

8. Solve for x: $6x^2 - 12x + 30 = 0$.
- $\bullet$ $x = 1 - 2i,\ 1 + 2i$
- $\circ$ $x = -2 - 4i,\ -\frac{1}{3} + \frac{2i}{3}$
- $\circ$ $x = -1 - 2i,\ -1 + 2i$
- $\circ$ $x = \frac{1}{3} + \frac{2i}{3},\ 2 - 4i$

9. Solve for x: $4x^2 - 48x + 208 = 0$.
- $\circ$ $x = -12 - 8i,\ -3 + 2i$
- $\circ$ $x = -6 - 4i,\ -6 + 4i$
- $\circ$ $x = 3 + 2i,\ 12 - 8i$
- $\bullet$ $x = 6 - 4i,\ 6 + 4i$

10. Solve for u in the equation $u^2 - 14u + 53 = 0$.
- $\circ$ $u = -14 - 4i,\ -14 + 4i$
- $\circ$ $u = -7 - 2i,\ -7 + 2i$
- $\bullet$ $u = 7 - 2i,\ 7 + 2i$
- $\circ$ $u = 14 - 4i,\ 14 + 4i$

11. Solve for x: $4x^2 - 56x + 392 = 0$.
- $\circ$ $x = -14 - 14i,\ -\frac{7}{2} + \frac{7i}{2}$
- $\circ$ $x = \frac{7}{2} + \frac{7i}{2},\ 14 - 14i$
- $\bullet$ $x = 7 - 7i,\ 7 + 7i$
- $\circ$ $x = -7 - 7i,\ -7 + 7i$

12. Solve for y: $7y^2 - 70y + 238 = 0$.
- $\circ$ $y = -5 - 3i,\ -5 + 3i$
- $\circ$ $y = -10 - 6i,\ -\frac{10}{7} + \frac{6i}{7}$
- $\circ$ $y = \frac{10}{7} + \frac{6i}{7},\ 10 - 6i$
- $\bullet$ $y = 5 - 3i,\ 5 + 3i$

13. Solve for x in the equation $3x^2 - 18x + 102 = 0$.
- $\circ$ $x = 2 + \frac{10i}{3},\ 6 - 10i$
- $\circ$ $x = -6 - 10i,\ -2 + \frac{10i}{3}$
- $\bullet$ $x = 3 - 5i,\ 3 + 5i$

14. Solve for y in the equation $-y^2 + 10y - 29 = 0$.
- $\bullet$ $y = 5 - 2i,\ 5 + 2i$
- $\circ$ $y = -10 + 4i,\ 10 + 4i$
- $\circ$ $y = -10 + 4i,\ 10 + 4i$

○
$$x = -3 + 5\,i,\ \tfrac{1}{6}\left(-18 - 3\,i\sqrt{138}\right)$$

○
$$y = -5 - 2\,i,\ \tfrac{1}{2}\left(-10 + i\sqrt{106}\right)$$

15. Solve for x in the equation $-2\,x^2 + 12\,x - 26 = 0$.

- ● $x = 3 - 2\,i,\ 3 + 2\,i$
- ○ $x = -6 + 4\,i,\ 3 + 2\,i$
- ○ $x = -3 - 2\,i,\ -3 + \tfrac{7i}{2}$
- ○ $x = -3 + 2\,i,\ 6 + 4\,i$

16. Solve for y: $6\,y^2 - 60\,y + 444 = 0$

- ○ $y = -10 - 14\,i,\ -\tfrac{5}{3} + \tfrac{7i}{3}$
- ○ $y = \tfrac{5}{3} + \tfrac{7i}{3},\ 10 - 14\,i$
- ● $y = 5 - 7\,i,\ 5 + 7\,i$
- ○ $y = -5 + 7\,i,\ \tfrac{1}{12}\left(-60 - 2\,i\sqrt{2679}\right)$

17. Solve for x: $4\,x^2 - 8\,x + 8 = 0$.

- ○ $x = -1 + i,\ \tfrac{1}{8}\left(-8 - 2\,i\sqrt{34}\right)$
- ● $x = 1 - i,\ 1 + i$
- ○ $x = -2 - 2\,i,\ -\tfrac{1}{2} + \tfrac{i}{2}$
- ○ $x = \tfrac{1}{2} + \tfrac{i}{2},\ 2 - 2\,i$

18. Solve for x: $-7\,x^2 + 28\,x - 371 = 0$.

- ○ $x = -2 - 7\,i,\ -2 + 7\,i$
- ○ $x = -\tfrac{4}{7} + 2\,i,\ 4 + 14\,i$
- ● $x = 2 - 7\,i,\ 2 + 7\,i$
- ○ $x = -4 + 14\,i,\ \tfrac{4}{7} + 2\,i$

19. Solve for v: $5\,v^2 - 60\,v + 200 = 0$.

- ○ $v = -6 + 2\,i,\ \tfrac{1}{10}\left(-60 - 2\,i\sqrt{1015}\right)$
- ○ $v = -12 - 4\,i,\ -\tfrac{12}{5} + \tfrac{4i}{5}$
- ● $v = 6 - 2\,i,\ 6 + 2\,i$
- ○ $v = \tfrac{12}{5} + \tfrac{4i}{5},\ 12 - 4\,i$

20. Solve for x in the equation $-4\,x^2 + 8\,x - 8 = 0$.

- ● $x = 1 - i,\ 1 + i$
- ○ $x = -1 - i,\ \tfrac{1}{8}\left(-8 + 2\,i\sqrt{30}\right)$
- ○ $x = -\tfrac{1}{2} + \tfrac{i}{2},\ 2 + 2\,i$
- ○ $x = -2 + 2\,i,\ \tfrac{1}{2} + \tfrac{i}{2}$