Linear Equation 2 Solutions

1. $$\frac{112}{21+\frac{609}{\frac{89-2x}{3}+60}}=4$$

$$\frac{112}{4}=21+\frac{609}{\frac{89-2x}{3}+60}$$

$$28=21+\frac{609}{\frac{89-2x}{3}+60}$$

$$28-21=\frac{609}{\frac{89-2x}{3}+60}$$

$$7=\frac{609}{\frac{89-2x}{3}+60}$$

$$\frac{89-2x}{3}+60=\frac{609}{7}$$

$$\frac{89-2x}{3}+60=87$$

$$\frac{89-2x}{3}=87-60$$

$$\frac{89-2x}{3}=27$$

$$89-2x=27\times 3$$

$$89-2x=81$$

$$89-81=2x$$

$$8=2x$$

$$\frac{8}{2}=x$$

$$4=x$$

2. $$\frac{112}{\frac{\frac{1210}{91+3x}-4}{2}+13}=7$$

$$\frac{112}{7}=\frac{\frac{1210}{91+3x}-4}{2}+13$$

$$16=\frac{\frac{1210}{91+3x}-4}{2}+13$$

$$16-13=\frac{\frac{1210}{91+3x}-4}{2}$$

$$3=\frac{\frac{1210}{91+3x}-4}{2}$$

$$3\times 2=\frac{1210}{91+3x}-4$$

$$6=\frac{1210}{91+3x}-4$$

$$6+4=\frac{1210}{91+3x}$$

$$10=\frac{1210}{91+3x}$$

$$91+3x=\frac{1210}{10}$$

$$91+3x=121$$

$$3x=121-91$$

$$3x=30$$

$$x=\frac{30}{3}$$

$$x=10$$

3. $$\frac{\dfrac{114}{\dfrac{468}{53+5x}+51}+97}{11}=9$$

$$\frac{114}{\dfrac{468}{53+5x}+51}+97=9\times 11$$

$$\frac{114}{\dfrac{468}{53+5x}+51}+97=99$$

$$\frac{114}{\dfrac{468}{53+5x}+51}=99-97$$

$$\frac{114}{\dfrac{468}{53+5x}+51}=2$$

$$\frac{114}{2}=\frac{468}{53+5x}+51$$

$$57=\frac{468}{53+5x}+51$$

$$57-51=\frac{468}{53+5x}$$

$$6=\frac{468}{53+5x}$$

$$53+5x=\frac{468}{6}$$

$$53+5x=78$$

$$5x=78-53$$

$$5x=25$$

$$x=\frac{25}{5}$$

$$x=5$$

4. $$\frac{148}{72+\dfrac{\dfrac{783}{42+5x}-3}{3}}=2$$

$$\frac{148}{2}=72+\frac{\dfrac{783}{42+5x}-3}{3}$$

$$74=72+\frac{\dfrac{783}{42+5x}-3}{3}$$

$$74-72=\frac{\dfrac{783}{42+5x}-3}{3}$$

$$2=\frac{\dfrac{783}{42+5x}-3}{3}$$

$$2\times 3=\frac{783}{42+5x}-3$$

$$6=\frac{783}{42+5x}-3$$

$$6+3=\frac{783}{42+5x}$$

$$9=\frac{783}{42+5x}$$

$$42+5x=\frac{783}{9}$$

$$42+5x=87$$

$$5x=87-42$$

$$5x=45$$

$$x=\frac{45}{5}$$

$$x=9$$

5. $$\frac{129}{30+\frac{\frac{351}{23+2x}+17}{2}}=3$$

$$\frac{129}{3}=30+\frac{\frac{351}{23+2x}+17}{2}$$

$$43=30+\frac{\frac{351}{23+2x}+17}{2}$$

$$43-30=\frac{\frac{351}{23+2x}+17}{2}$$

$$13=\frac{\frac{351}{23+2x}+17}{2}$$

$$13\times 2=\frac{351}{23+2x}+17$$

$$26=\frac{351}{23+2x}+17$$

$$26-17=\frac{351}{23+2x}$$

$$9=\frac{351}{23+2x}$$

$$23+2x=\frac{351}{9}$$

$$23+2x=39$$

$$2x=39-23$$

$$2x=16$$

$$x=\frac{16}{2}$$

$$x=8$$

6. $$\frac{76+\frac{292}{64+\frac{1278}{10x+12}}}{40}=2$$

$$76+\frac{292}{64+\frac{1278}{10x+12}}=2\times 40$$

$$76+\frac{292}{64+\frac{1278}{10x+12}}=80$$

$$\frac{292}{64+\frac{1278}{10x+12}}=80-76$$

$$\frac{292}{64+\frac{1278}{10x+12}}=4$$

$$\frac{292}{4}=64+\frac{1278}{10x+12}$$

$$73=64+\frac{1278}{10x+12}$$

$$73-64=\frac{1278}{10x+12}$$

$$9=\frac{1278}{10x+12}$$

$$10x+12=\frac{1278}{9}$$

$$10x+12=142$$

$$10x=142-12$$

$$10x=130$$

$$x=\frac{130}{10}$$

$$x=13$$

7. $\dfrac{126}{65-\dfrac{32+\dfrac{78}{8x-19}}{19}}=2$

$$\frac{126}{2}=65-\frac{32+\frac{78}{8x-19}}{19}$$

$$63=65-\frac{32+\frac{78}{8x-19}}{19}$$

$$\frac{32+\frac{78}{8x-19}}{19}=65-63$$

$$\frac{32+\frac{78}{8x-19}}{19}=2$$

$$32+\frac{78}{8x-19}=2\times 19$$

$$32+\frac{78}{8x-19}=38$$

$$\frac{78}{8x-19}=38-32$$

$$\frac{78}{8x-19}=6$$

$$\frac{78}{6}=8x-19$$

$$13=8x-19$$

$$13+19=8x$$

$$32=8x$$

$$\frac{32}{8}=x$$

$$4=x$$

8. $\dfrac{93}{33-\dfrac{\frac{870}{135-6x}-4}{3}}=3$

$$\frac{93}{3}=33-\frac{\frac{870}{135-6x}-4}{3}$$

$$31=33-\frac{\frac{870}{135-6x}-4}{3}$$

$$\frac{\frac{870}{135-6x}-4}{3}=33-31$$

$$\frac{\frac{870}{135-6x}-4}{3}=2$$

$$\frac{870}{135-6x}-4=2\times 3$$

$$\frac{870}{135-6x}-4=6$$

$$\frac{870}{135-6x}=6+4$$

$$\frac{870}{135-6x}=10$$

$$\frac{870}{10}=135-6x$$

$$87=135-6x$$

$$6x=135-87$$

$$6x=48$$

$$x=\frac{48}{6}$$

$$x=8$$

9. $$\frac{470}{\dfrac{576}{70-\dfrac{240}{5x-35}}+38}=10$$

$$\frac{470}{10}=\frac{576}{70-\dfrac{240}{5x-35}}+38$$

$$47=\frac{576}{70-\dfrac{240}{5x-35}}+38$$

$$47-38=\frac{576}{70-\dfrac{240}{5x-35}}$$

$$9=\frac{576}{70-\dfrac{240}{5x-35}}$$

$$70-\frac{240}{5x-35}=\frac{576}{9}$$

$$70-\frac{240}{5x-35}=64$$

$$70-64=\frac{240}{5x-35}$$

$$6=\frac{240}{5x-35}$$

$$5x-35=\frac{240}{6}$$

$$5x-35=40$$

$$5x=40+35$$

$$5x=75$$

$$x=\frac{75}{5}$$

$$x=15$$

10. $$\frac{170}{25+\dfrac{\dfrac{202}{87+2x}+34}{4}}=5$$

$$\frac{170}{5}=25+\frac{\dfrac{202}{87+2x}+34}{4}$$

$$34=25+\frac{\dfrac{202}{87+2x}+34}{4}$$

$$34-25=\frac{\dfrac{202}{87+2x}+34}{4}$$

$$9=\frac{\dfrac{202}{87+2x}+34}{4}$$

$$9\times 4=\frac{202}{87+2x}+34$$

$$36=\frac{202}{87+2x}+34$$

$$36-34=\frac{202}{87+2x}$$

$$2=\frac{202}{87+2x}$$

$$87+2x=\frac{202}{2}$$

$$87+2x=101$$

$$2x=101-87$$

$$2x=14$$

$$x=\frac{14}{2}$$

$$x=7$$

11. $$\frac{88+\dfrac{74}{27+\dfrac{1290}{84+9x}}}{18}=5$$

$$88+\frac{74}{27+\dfrac{1290}{84+9x}}=5\times 18$$

$$88+\frac{74}{27+\dfrac{1290}{84+9x}}=90$$

$$\frac{74}{27+\dfrac{1290}{84+9x}}=90-88$$

$$\frac{74}{27+\dfrac{1290}{84+9x}}=2$$

$$\frac{74}{2}=27+\frac{1290}{84+9x}$$

$$37=27+\frac{1290}{84+9x}$$

$$37-27=\frac{1290}{84+9x}$$

$$10=\frac{1290}{84+9x}$$

$$84+9x=\frac{1290}{10}$$

$$84+9x=129$$

$$9x=129-84$$

$$9x=45$$

$$x=\frac{45}{9}$$

$$x=5$$

12. $$\frac{592}{72+\dfrac{70}{58-\dfrac{48+3x}{3}}}=8$$

$$\frac{592}{8}=72+\frac{70}{58-\dfrac{48+3x}{3}}$$

$$74=72+\frac{70}{58-\dfrac{48+3x}{3}}$$

$$74-72=\frac{70}{58-\dfrac{48+3x}{3}}$$

$$2=\frac{70}{58-\dfrac{48+3x}{3}}$$

$$58-\frac{48+3x}{3}=\frac{70}{2}$$

$$58-\frac{48+3x}{3}=35$$

$$58-35=\frac{48+3x}{3}$$

$$23=\frac{48+3x}{3}$$

$$23\times 3=48+3x$$

$$69=48+3x$$

$$69-48=3x$$

$$21=3x$$

$$\frac{21}{3}=x$$

$$7=x$$

13. $$\frac{64+\dfrac{150}{13+\dfrac{98-5x}{39}}}{37}=2$$

$$64+\frac{150}{13+\frac{98-5x}{39}}=2\times 37$$

$$64+\frac{150}{13+\frac{98-5x}{39}}=74$$

$$\frac{150}{13+\frac{98-5x}{39}}=74-64$$

$$\frac{150}{13+\frac{98-5x}{39}}=10$$

$$\frac{150}{10}=13+\frac{98-5x}{39}$$

$$15=13+\frac{98-5x}{39}$$

$$15-13=\frac{98-5x}{39}$$

$$2=\frac{98-5x}{39}$$

$$2\times 39=98-5x$$

$$78=98-5x$$

$$5x=98-78$$

$$5x=20$$

$$x=\frac{20}{5}$$

$$x=4$$

14. $$\frac{\dfrac{40+\dfrac{516}{216-10x}}{2}+45}{4}=17$$

$$\frac{40+\frac{516}{216-10x}}{2}+45=17\times 4$$

$$\frac{40+\frac{516}{216-10x}}{2}+45=68$$

$$\frac{40+\frac{516}{216-10x}}{2}=68-45$$

$$\frac{40+\frac{516}{216-10x}}{2}=23$$

$$40+\frac{516}{216-10x}=23\times 2$$

$$40+\frac{516}{216-10x}=46$$

$$\frac{516}{216-10x}=46-40$$

$$\frac{516}{216-10x}=6$$

$$\frac{516}{6}=216-10x$$

$$86=216-10x$$

$$10x=216-86$$

$$10x=130$$

$$x=\frac{130}{10}$$

$$x=13$$

15. $$\frac{159}{50+\dfrac{23+\dfrac{560}{98-7x}}{11}}=3$$

$$\frac{159}{3}=50+\frac{23+\dfrac{560}{98-7x}}{11}$$

$$53=50+\frac{23+\dfrac{560}{98-7x}}{11}$$

$$53-50=\frac{23+\dfrac{560}{98-7x}}{11}$$

$$3=\frac{23+\dfrac{560}{98-7x}}{11}$$

$$3\times 11=23+\frac{560}{98-7x}$$

$$33=23+\frac{560}{98-7x}$$

$$33-23=\frac{560}{98-7x}$$

$$10=\frac{560}{98-7x}$$

$$98-7x=\frac{560}{10}$$

$$98-7x=56$$

$$98-56=7x$$

$$42=7x$$

$$\frac{42}{7}=x$$

$$6=x$$

16. $$\frac{40}{\dfrac{182}{36-\dfrac{660}{38+7x}}-2}=8$$

$$\frac{40}{8}=\frac{182}{36-\dfrac{660}{38+7x}}-2$$

$$5=\frac{182}{36-\dfrac{660}{38+7x}}-2$$

$$5+2=\frac{182}{36-\dfrac{660}{38+7x}}$$

$$7=\frac{182}{36-\dfrac{660}{38+7x}}$$

$$36-\frac{660}{38+7x}=\frac{182}{7}$$

$$36-\frac{660}{38+7x}=26$$

$$36-26=\frac{660}{38+7x}$$

$$10=\frac{660}{38+7x}$$

$$38+7x=\frac{660}{10}$$

$$38+7x=66$$

$$7x=66-38$$

$$7x=28$$

$$x=\frac{28}{7}$$

$$x=4$$

17. $$\frac{240}{27-\dfrac{48-\dfrac{1026}{60+6x}}{13}}=10$$

$$\frac{240}{10}=27-\frac{48-\dfrac{1026}{60+6x}}{13}$$

$$24=27-\frac{48-\dfrac{1026}{60+6x}}{13}$$

$$\frac{48-\dfrac{1026}{60+6x}}{13}=27-24$$

$$\frac{48-\dfrac{1026}{60+6x}}{13}=3$$

$$48-\frac{1026}{60+6x}=3\times 13$$

$$48-\frac{1026}{60+6x}=39$$

$$48-39=\frac{1026}{60+6x}$$

$$9=\frac{1026}{60+6x}$$

$$60+6x=\frac{1026}{9}$$

$$60+6x=114$$

$$6x=114-60$$

$$6x=54$$

$$x=\frac{54}{6}$$

$$x=9$$

18. $$\frac{85+\dfrac{81}{29-\dfrac{200}{2x+76}}}{4}=22$$

$$85+\frac{81}{29-\dfrac{200}{2x+76}}=22\times 4$$

$$85+\frac{81}{29-\dfrac{200}{2x+76}}=88$$

$$\frac{81}{29-\dfrac{200}{2x+76}}=88-85$$

$$\frac{81}{29-\dfrac{200}{2x+76}}=3$$

$$\frac{81}{3}=29-\frac{200}{2x+76}$$

$$27=29-\frac{200}{2x+76}$$

$$\frac{200}{2x+76}=29-27$$

$$\frac{200}{2x+76}=2$$

$$\frac{200}{2}=2x+76$$

$$100=2x+76$$

$$100-76=2x$$

$$24=2x$$

$$\frac{24}{2}=x$$

$$12=x$$

19. $$\frac{78}{\dfrac{1000}{\dfrac{1242}{8x+66}+91}+29}=2$$

$$\frac{78}{2}=\frac{1000}{\dfrac{1242}{8x+66}+91}+29$$

$$39=\frac{1000}{\dfrac{1242}{8x+66}+91}+29$$

$$39-29=\frac{1000}{\dfrac{1242}{8x+66}+91}$$

$$10=\frac{1000}{\dfrac{1242}{8x+66}+91}$$

$$\frac{1242}{8x+66}+91=\frac{1000}{10}$$

$$\frac{1242}{8x+66}+91=100$$

$$\frac{1242}{8x+66}=100-91$$

$$\frac{1242}{8x+66}=9$$

$$\frac{1242}{9}=8x+66$$

$$138=8x+66$$

$$138-66=8x$$

$$72=8x$$

$$\frac{72}{8}=x$$

$$9=x$$

20. $$\frac{108}{\dfrac{34}{12+\dfrac{700}{10x+60}}+25}=4$$

$$\frac{108}{4}=\frac{34}{12+\dfrac{700}{10x+60}}+25$$

$$27=\frac{34}{12+\dfrac{700}{10x+60}}+25$$

$$27-25=\frac{34}{12+\dfrac{700}{10x+60}}$$

$$2=\frac{34}{12+\dfrac{700}{10x+60}}$$

$$12+\frac{700}{10x+60}=\frac{34}{2}$$

$$12+\frac{700}{10x+60}=17$$

$$\frac{700}{10x+60}=17-12$$

$$\frac{700}{10x+60}=5$$

$$\frac{700}{5}=10x+60$$

$$140=10x+60$$

$$140-60=10x$$

$$80=10x$$

$$\frac{80}{10}=x$$

$$8=x$$