

MATH 151 SAMPLE TEST 1

Solutions

1. 6
2. 4
3. 10
4. -1
5. $3(x - 2) = 9 \Rightarrow x - 2 = 3 \Rightarrow x = 5.$
6. $\frac{6}{x} = 2 \Rightarrow$ (cross-multiply) $2x = 6 \Rightarrow x = 3.$
7. $\frac{x}{2} + \frac{3x}{5} = 2.2 \Rightarrow$ (multiply by 10) $5x + 6x = 22 \Rightarrow 11x = 22 \Rightarrow x = 2.$
8. $\frac{2+x}{2-x} = 3 \Rightarrow$ (cross-multiply) $3(2-x) = 2+x \Rightarrow 6-3x = 2+x$
 $\Rightarrow 4x = 4 \Rightarrow x = 1.$
9. Add the two equations $\Rightarrow 4x = 4 \Rightarrow x = 1$, so $2y = 6 \Rightarrow y = 3.$
10. Subtract the first from the second $\Rightarrow 4x = 8 \Rightarrow x = 2$ so $2y = -6 \Rightarrow y = -3.$
11. Subtract twice the second equation from the first $\Rightarrow 5y = 10 \Rightarrow y = 2$ so $x = 2 - 3 = -1.$ (Alternatively add three times the second to the first.)
12. $2 \times$ (i) $4x - 10y = -16$
 $5 \times$ (ii) $25x + 10y = 45$
add $29x = 29 \Rightarrow x = 1$ so $2y = 9 - 5 = 4 \Rightarrow y = 2.$
13. $\text{Slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{8-2}{4-1} = \frac{6}{3} = 2.$
14. $\text{Slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{5-(-2)}{2-(-1)} = \frac{7}{3}.$
15. $2y - 3x = 5 \Rightarrow y = \frac{3}{2}x + \frac{5}{2}$, so slope is $\frac{3}{2}.$
16. $5x + 3y = 6 \Rightarrow y = -\frac{5}{3}x + 2$, so slope is $-\frac{5}{3}.$
17. $y - 1 = 2(x - 2) \Rightarrow y = 2x - 3.$
18. The line has slope $m = \frac{4-2}{2-1} = 2$, so equation $y - 2 = 2(x - 1) \Rightarrow y = 2x.$
19. The line has slope $m = -2$ and y -intercept 3, so equation $y = -2x + 3.$
20. The line has slope $m = -3$ and y -intercept 5, so equation $y = -3x + 5.$