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1. Factor: $36n^2 - 81$

[A] 9(2n-3)(2n+3)   [B] (6n-9)²   [C] $36^{-1}\left(n + \dfrac{3}{2}\right)\left(n - \dfrac{3}{2}\right)$

[D] 9 (- 9 + 4n)   [E] None of these

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2. Find four consecutive odd integers such that the sum of the first and fourth is 55 greater than the opposite of the third.

[A] 17, 18, 19, 20   [B] 5, 7, 9, 11   [C] -20, -19, -18, -17

[D] 15, 17, 19, 21   [E] None of these

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3. A box contains 4 blue chips and 5 black chips. If two chips are drawn at random with replacement, what is the probability that both will be blue ?

[A] $\dfrac{16}{81}$ [B] $\dfrac{25}{81}$ [C] $\dfrac{1}{6}$ [D] $\dfrac{5}{18}$ [E] None of these

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4. If the sum of three numbers is 456 and the first two numbers are 121.3 and 175.4, what is the average of the three numbers ?

[A] 159.3   [B] 148.35   [C] 152   [D] 98.9   [E] None of these

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5. Write in scientific notation: $315{,}800 \times 10^{-8}$

[A] 31,580,000,000,000   [B] 3.158×10^{-3} [C] 3.158×10^{-14}

[D] 0.003158   [E] None of these

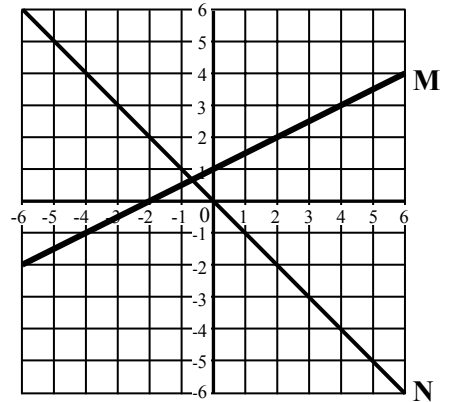
6. Solve: $\dfrac{x-2}{3} - \dfrac{3}{4} = \dfrac{x}{6}$

[A] $x = \dfrac{13}{17}$ [B] x = 5   [C] $x = \dfrac{1}{2}$ [D] 5   [E] None of these

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7. Find the equation of line M at right –

[A] y = 2x +1   [B] y = 2x-2   [C] y = ½ x+1

[D] y = x   [E] None of these

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8. Find the equation of line N at right –

[A] y = ½ x +0   [B] y = x   [C] y = x - 1

[D] y = - x   [E] None of these

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9. Write in scientific notation: 6,022,000,000,000,000,000,000

[A] 6.022×10^{23} [B] 6.022×10^{-21} [C] 6.022×10^{21}

[D] 6.022×10^{-23} [E] None of these

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10. The golfer hit the ball with a 6-iron, but the ball only went ¾ of the required distance. If the ball traveled 120 yards, what was the required distance ?

[A] 90   [B] 720   [C] 540   [D] 60   [E] None of these

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11. When 7/8 of the books had been sold, there were 56 books left. How many books were there originally ?

[A] 64   [B] 49   [C] 448   [D] 392   [E] None of these

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12. Find four consecutive integers such that six times the sum of the first and third is 12 greater than 9 times the fourth.

[A] 14, 16, 18, 20   [B] 3, 4, 5, 6   [C] 12, 13, 14, 15

[D] 9, 10, 11, 12   [E] None of these

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13. $R_A T_A + 340 = R_B T_B$, $T_A = 5$, $T_B = 20$, $R_B = R_A - 25$. Find R_A and R_B.
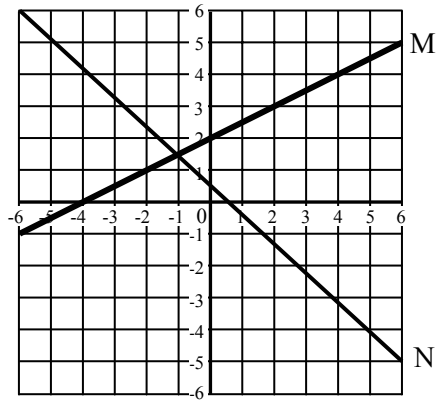
[A] $R_A + 325 = R_B$ [B] $R_A = \dfrac{32}{3}$, $R_B = -\dfrac{43}{3}$ [C] $R_A = 56$, $R_B = 31$

[D] $R_A = -\dfrac{43}{3}$, $R_B = \dfrac{32}{3}$ [E] None of these

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14. What is the y-intercept of line M ?

[A] 2   [B] - 4   [C] 5

[D] 6   [E] None of these

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15. What is the slope of line N ?

[A] $\dfrac{1}{2}$ [B] 1   [C] $-\dfrac{11}{12}$

[D] $\dfrac{11}{12}$ [E] None of these

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16. Solve: $\dfrac{b}{3} = \dfrac{4}{5} - \dfrac{b+5}{8}$

[A] $b = \dfrac{7}{6}$ [B] $b = \dfrac{21}{55}$ [C] $b = -\dfrac{1}{2}$ [D] $b = -\dfrac{21}{25}$ [E] None of these

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17. $36\dfrac{1}{2}$ of 146 is what number ?

[A] $\dfrac{1}{4}$ [B] 172   [C] 4   [D] 5329

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18. Simplify: $\dfrac{\left(.05 \; x \; 10^{-6}\right)(60,000)}{(100,000)(0.0000003)}$

[A] $1 \; x \; 10^{2}$ [B] 1   [C] $1 \; x \; 10^{-2}$ [D] 0.1   [E] None of these

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19. Simplify: $\dfrac{mm(m^{5})^{0} \, m^{-3}}{m^{6}(y^{3})^{-3}}$

[A] $\dfrac{1}{m^{7}}$ [B] $\dfrac{y^{9}}{m^{2}}$ [C] $\dfrac{y^{9}}{m^{7}}$ [D] $\dfrac{1}{m^{6}y^{-6}}$ [E] None of these

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20. Simplify: $\dfrac{\left(.06 \; x \; 10^{4}\right)(600)}{(0.0000004)\left(5 \; x \; 10^{-4}\right)}$

[A] $1.8 \; x \; 10^{7}$ [B] $1.8 \; x \; 10^{15}$ [C] $1.8 \; x \; 10^{-19}$

[D] $1.8 \; x \; 10^{14}$ [E] None of these