

Chapter 7 — Writing Linear Equations

Worksheet C: Mixed Application

Name: _____ Grade: _____ Date: _____

1. A phone plan costs \$40 per month plus \$3 per GB. Write an equation for cost C in terms of GB used, g . Find the cost for 15 GB. Then find g if the bill is \$100.

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2. Line A has slope 2 and y-intercept -1 . Line B passes through $(2, 1)$ and $(4, -1)$. Write both equations.

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3. A plant is 3 cm tall and grows 2 cm per day. Write an equation for height H after d days. Find the height after 10 days.
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4. Write the equation of the line through (1, 4) and (4, 13). Does it pass through the origin? Explain.

5. Create a line parallel to $y = -3x + 2$ that passes through the y-axis at 4.

6. A student writes the equation of a line with slope 6 through (4, -1) as $y - 1 = 6(x - 4)$. Explain the sign error and write the correct equation.

7. A worker starts with \$150 saved and saves \$50 each week. Write an equation for savings S after w weeks. Find w when $S = 650$.

8. Write the equation of a line perpendicular to $y = \frac{3}{4}x - 1$ that passes through $(0, 2)$.

9. Are these lines parallel, perpendicular, or neither? $y = 2x + 1$ and $y = -\frac{1}{2}x + 1$. Explain.

10. A table shows: when x is 0, 2, 4, y is 8, 14, 20. Write the equation.

11. A delivery service charges \$12 plus \$0.75 per kilometre. Write an equation for cost C after k kilometres. Find the cost for 20 km.

12. Write the equation of the vertical line through $(-3, 4)$. Explain why it cannot be written as $y = mx + b$.

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13. Write the equation of the line through $(1, 1)$ and $(4, 10)$.

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14. Which line is steeper: $y = -5x + 2$ or $y = 3x - 8$? Explain.

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15. Create a real-world situation that could be represented by $y = 4x + 7$. Explain what the 4 and the 7 mean.