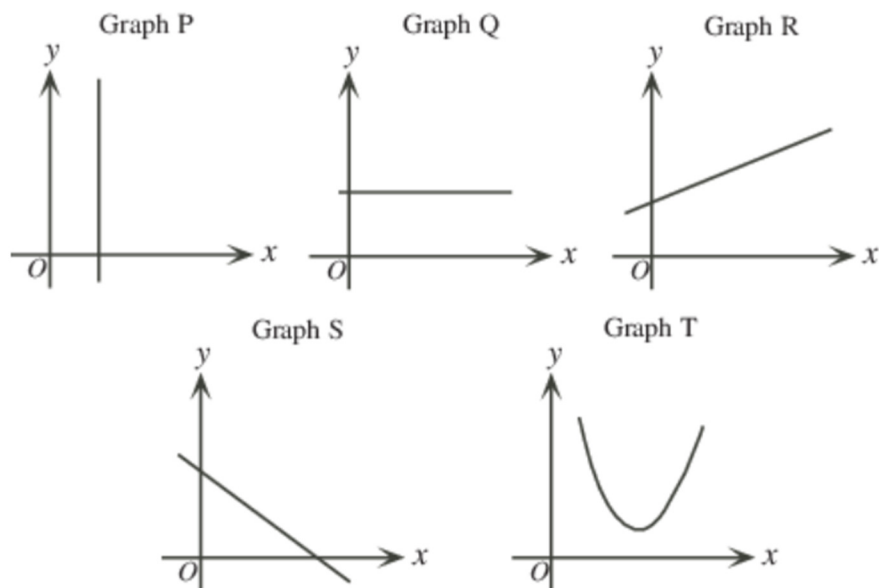




The following problems were created by the University of Waterloo's Centre for Education in Mathematics and Computing (CEMC). Visit cemc.uwaterloo.ca for more information and resources.

- 1) Which of the five graphs is linear with a slope of 0?



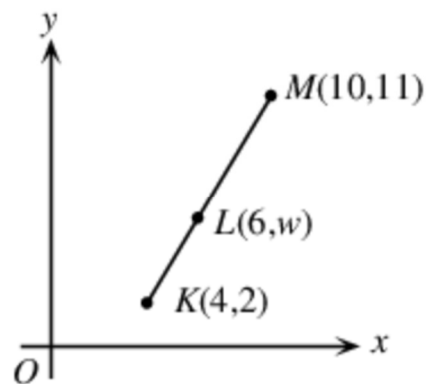
- (A) Graph P (B) Graph Q (C) Graph R (D) Graph S (E) Graph T

- 2) If the line that passes through the points $(2, 7)$ and $(a, 3a)$ has a slope of 2, the value of a is

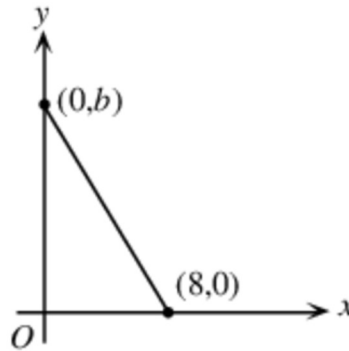
- (A) $\frac{5}{2}$ (B) 10 (C) 3 (D) $\frac{11}{5}$ (E) $\frac{12}{5}$

- 3) Point L lies on line segment KM , as shown. The value of w is

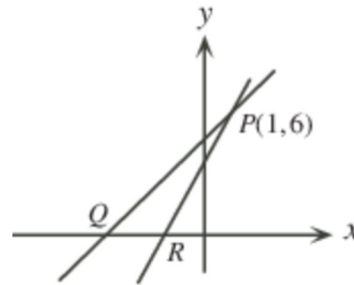
- (A) 4 (B) 5 (C) 6
(D) 7 (E) 8



- 4) In the diagram, the line segment has slope $-\frac{3}{2}$. The value of b is
- (A) 10 (B) 12 (C) 6
 (D) 16 (E) 20



- 5) A line with slope equal to 1 and a line with slope equal to 2 intersect at the point $P(1, 6)$, as shown. The area of $\triangle PQR$ is
- (A) 6 (B) 9 (C) 12
 (D) 15 (E) 18



- 6) Including the endpoints, how many points on the line segment joining $(-9, -2)$ and $(6, 8)$ have coordinates that are both integers?
- (A) 2 (B) 7 (C) 16 (D) 11 (E) 6
- 7) Two lines with slopes $\frac{1}{4}$ and $\frac{5}{4}$ intersect at $(1, 1)$. What is the area of the triangle formed by these two lines and the vertical line $x = 5$?
- (A) 5 (B) 10 (C) 8 (D) 12 (E) 15

ANSWERS AND SOURCES

- 1) B, 2011 Cayley (Grade 10), #6
- 2) C, 2016 Cayley (Grade 10), #6
- 3) B, 2005 Pascal (Grade 9), #12
- 4) B, 2005 Cayley (Grade 10), #7
- 5) B, 2009 Cayley (Grade 10), #18
- 6) E, 2018 Cayley (Grade 10), #14
- 7) C, 2017 Cayley (Grade 10), #19