Name: KEY Class: _____ Date: _____ ID: A

Math 9 Midterm 2013 Review Package

Multiple Choice

Identify the choice that best completes the statement or answers the question.

C 1. Which numbers are rational numbers?

$\frac{2}{11}$, 3.6, $0.8\overline{3}$, $\frac{11}{2}$

a. $\frac{2}{11}$ and 3.6

b. $\frac{2}{11}$ and $\frac{11}{2}$

c. All of them

d. $\frac{2}{11}$, 3.6, and $\frac{11}{2}$

B 2. Identify equal rational numbers in this list:

$\frac{-3}{-4}$, $\frac{-3}{4}$, $-\frac{4}{3}$, $\frac{3}{-4}$, $-\frac{3}{4}$

a. $-\frac{4}{3}$ and $\frac{3}{-4}$

b. $\frac{-3}{4}$, $\frac{3}{-4}$, and $-\frac{3}{4}$

c. $\frac{-3}{4}$, $-\frac{4}{3}$, and $-\frac{3}{4}$

d. $\frac{-3}{-4}$ and $-\frac{4}{3}$

D 3. Which rational number is represented by the letter A on the number line?

a. −0.5

b. −0.8

c. −5

d. $-\frac{5}{6}$

B 4. Which of these numbers are between $\frac{4}{6}$ and $\frac{7}{5}$?

$\frac{5}{6}$, $\frac{1}{5}$, $\frac{7}{8}$, $\frac{4}{5}$

a. $\frac{5}{6}$ and $\frac{7}{8}$

b. $\frac{5}{6}$, $\frac{7}{8}$, and $\frac{4}{5}$

c. $\frac{1}{5}$ and $\frac{7}{8}$

d. $\frac{5}{6}$ and $\frac{4}{5}$

B 5. Determine this sum.

$(-2.5) + (-6.1)$

a. 8.6

b. −8.6

c. −3.6

d. 3.6

D 6. A student first borrowed $40.25, then borrowed another $15.75 from his father. He then paid back $20.75. How much does he still owe his father?

a. $3.75

b. $45.25

c. $24.50

d. $35.25

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B 7. Determine this difference.

$-\frac{5}{2}-\left(-\frac{9}{5}\right)$

a. $-\frac{43}{10}$ b. $-\frac{7}{10}$ c. $\frac{7}{10}$ d. $\frac{43}{10}$

A 8. Determine this difference.

$-4\frac{2}{3}-2\frac{1}{2}$

a. $-7\frac{1}{6}$ b. $7\frac{1}{6}$ c. $2\frac{1}{6}$ d. $-2\frac{1}{6}$

A 9. Determine this product.

$\frac{4}{9}\times(-6)$

a. $-\frac{8}{3}$ b. $\frac{50}{9}$ c. $-\frac{50}{9}$ d. $\frac{8}{3}$

C 10. Determine this product.

$\left(-\frac{3}{2}\right)\left(-\frac{5}{4}\right)$

a. $-\frac{11}{4}$ b. $-\frac{15}{8}$ c. $\frac{15}{8}$ d. $\frac{11}{4}$

D 11. Determine this quotient.

$\frac{11}{12}\div\left(-\frac{5}{6}\right)$

a. $-\frac{55}{72}$ b. $-\frac{72}{55}$ c. $-\frac{10}{11}$ d. $-\frac{11}{10}$

C 12. Evaluate.

$\frac{5}{6}\div\left(\frac{4}{3}+\frac{1}{6}\right)$

a. $\frac{25}{54}$ b. $\frac{8}{15}$ c. $\frac{5}{9}$ d. $\frac{19}{24}$

C 13. Evaluate.

$\frac{5}{6}-\frac{2}{3}\times\frac{3}{4}+\frac{5}{6}$

a. -4 b. $-\frac{1}{72}$ c. $\frac{7}{6}$ d. $\frac{5}{7}$

B 14. Evaluate.

$\frac{2\times5-3}{4+3\times5}$

a. $\frac{1}{3}$ b. $\frac{7}{19}$ c. -12 d. $\frac{4}{35}$

C 15. List all the whole numbers between 63 and 101 that are perfect squares.
a. 64, 81, 96
b. 64, 81
c. 64, 81, 100
d. 64, 72, 81, 100

D 16. Evaluate.
$5-(-6)\times(2)$
a. 22 b. 17 c. 7 d. 2

C 17. The formula $F=\frac{9}{5}\times C+32$ can be used to convert Celsius temperature to Fahrenheit.
Convert –20°C to Fahrenheit.
a. 93.6°F b. 13.8°F c. –4°F d. –68°F

A 18. Determine the value of $\sqrt{0.16}$.
a. 0.4 b. 0.07 c. 0.2 d. 0.04

D 19. Determine the value of $\sqrt{2.56}$.
a. 0.64 b. 0.16 c. 0.8 d. 1.6

A 20. Calculate the number whose square root is 0.9.
a. 0.81 b. 0.0081 c. 0.081 d. 0.09

A 21. Which fraction is a perfect square?
i) $\frac{49}{60}$
ii) $\frac{49}{225}$
iii) $\frac{28}{225}$
iv) $\frac{7}{15}$
a. ii b. iii c. iv d. i

B 22. Determine the value of $\sqrt{\frac{72}{98}}$.
a. $\frac{6}{14}$ b. $\frac{6}{7}$ c. $\frac{12}{7}$ d. $\frac{36}{49}$

B 23. Name the two whole numbers whose squares are closest to 22.5.
a. 9, 25 b. 4, 5 c. 4, 9 d. 16, 25

C 24. Determine the value of $\sqrt{77.2}$, to the nearest tenth.
a. 8.79 b. 9 c. 8.8 d. 8.7

B 25. Estimate the value of $\sqrt{0.15}$, to the nearest tenth.
a. 0.3 b. 0.4 c. 0.39 d. 0.2

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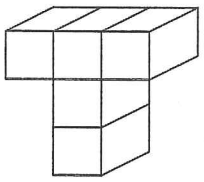
A 26. Estimate the value of $\sqrt{\frac{5}{11}}$, to the nearest tenth.

a. 0.7 b. 0.6 c. 0.67 d. 0.5

B 27. The lengths of the two legs of a right triangle are 8 cm and 6 cm.
Determine the length of the hypotenuse.

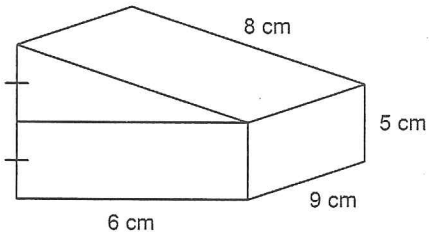
a. 14 cm b. 10 cm c. 100 cm d. 196 cm

C 28. This composite object is made using centimetre cubes. Determine its surface area.



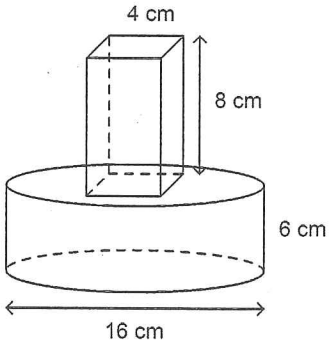
a. 21 cm^2 b. 19 cm^2 c. 22 cm^2 d. 30 cm^2

A 29. This object is composed of a right triangular prism on top of a right rectangular prism.
Determine the surface area of the object.



a. 351 cm^2 b. 297 cm^2 c. 207 cm^2 d. 441 cm^2

C 30. This object is composed of a rectangular prism on top of a cylinder.
The rectangular prism has height 8 cm and square ends of side length 4 cm.
The cylinder has diameter 16 cm and height 6 cm.
Determine the surface area of the object, to the nearest square centimetre.



a. 631 cm^2 b. 816 cm^2 c. 832 cm^2 d. 848 cm^2

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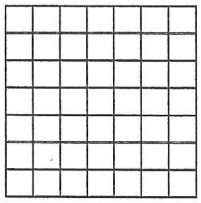
B 31. Write the number of unit squares in this large square as a power.



a. 7×7 b. 7^2 c. 7×4 d. 7^7

A 32. Write the base of $-(-5)^3$.

a. -5 b. 5 c. -5×3 d. 3

C 33. Write 7^5 as repeated multiplication.

a. 5×7
b. $7+7+7+7+7$
c. $7 \times 7 \times 7 \times 7 \times 7$
d. $7 \times 7 \times 7 \times 7 \times 7 \times 7$

A 34. Write $(-4) \times (-4) \times (-4) \times (-4) \times (-4) \times (-4)$ as a power.

a. $(-4)^6$ b. $6 \times (-4)$ c. $-(4)^6$ d. $(-4)^5$

B 35. Evaluate: 6^5

a. 30 b. 7776 c. 15 625 d. 11

A 36. Evaluate: -4^4

a. -256 b. -16 c. 16 d. 256

D 37. Evaluate: $(-5)^7$

a. -35 b. 35 c. 78 125 d. -78 125

B 38. Which answer is negative?

i) $(-6)^6$
ii) $-(6)^6$
iii) $-(-6)^6$

a. i and ii b. ii and iii c. i only d. i and iii

B 39. Evaluate: 10^7

a. 100 000 000 b. 10 000 000 c. 1 000 000 d. 70

D 40. Write 1 000 000 as a power of 10.

a. $(1 \times 10^6)+(1 \times 10^5)+(1 \times 10^4)+(1 \times 10^2)+(1 \times 10^1)+(1 \times 10^0)$
b. 10^5
c. $(10 \times 10^5)+(10 \times 10^4)+(10 \times 10^2)+(10 \times 10^1)+(10 \times 10^0)$
d. 10^6

D 41. Evaluate: -8^0

a. 8 b. 0 c. 1 d. -1

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B 42. Write $(5 \times 10^4) + (8 \times 10^1) + (9 \times 10^2) + (6 \times 10^0)$ in standard form.
a. 50 980 b. 50 986 c. 50 981 d. 5986

C 43. Evaluate: $4 - 6^2$
a. -8 b. 16 c. -32 d. 32

D 44. Evaluate: $2^3 - (-3)^3$
a. 15 b. -19 c. -3 d. 35

A 45. Evaluate: $(5^3 - 4^2)^0 - (6^2 - 8^0)$
a. -34 b. -35 c. -36 d. 73

B 46. Evaluate: $(3+4)^2 - (2-4)^3$
a. -31 b. 57 c. 20 d. 41

A 47. Write the product of $5^3 \times 5^4$ as a single power.
a. 5^7 b. 5^{12} c. 10^7 d. 25^7

A 48. Write the quotient of $\frac{6^{10}}{6^5}$ as a single power.
a. 6^5 b. 6^{15} c. 6^2 d. 2

B 49. Express $7^9 \times 7^3 \div 7^6$ as a single power.
a. 7^2 b. 7^6 c. 7^{18} d. 7^{21}

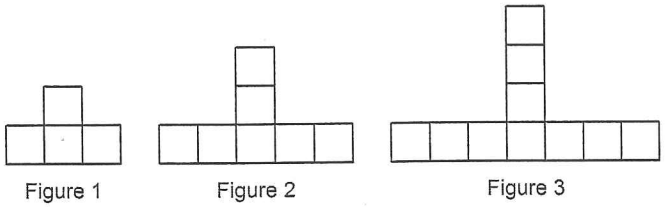
A 50. Evaluate: $10^2 \times 10^5 + 10^5$
a. 10 100 000 c. 120
b. 1 000 000 000 000 d. 10 000 100 000

C 51. Write $\left(\frac{11}{9}\right)^5$ as a quotient of powers.
a. 2^5 b. $11^5 - 9^5$ c. $\frac{11^5}{9^5}$ d. $\frac{11^5}{9^1}$

C 52. Write $-\left(7^2\right)^3$ as a power.
a. 7^5 b. -7^5 c. -7^6 d. 7^6

C 53. In a table of values for a pattern, $P = 12$ when $n = 3$. Determine the equation that might represent the pattern.
a. $P = 4n + 6$ b. $P = 24 - 3n$ c. $P = 4(6 - n)$ d. $P = 4(n + 6)$

B 54. This pattern of unit squares continues. Which equation below relates the number of squares, n, to the figure number, f?



i) $n = 3f + 4$
ii) $n = 3f + 1$
iii) $f = 3n + 1$
iv) $f = 4 + 3n$

a. iii b. ii c. iv d. i

B 55. The cost to rent a piece of equipment is $24, plus $8.27 per hour. Calculate the cost of renting the equipment for 6 h.

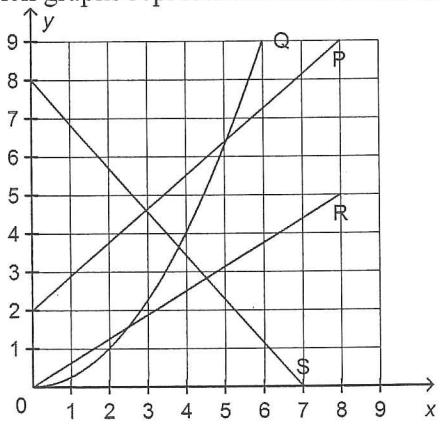
a. $1190.88 b. $73.62 c. $193.62 d. $38.27

A 56. The pattern in this table continues. Determine an equation that relates the term value to the term number.

Term Number, s	1	2	3	4	5
Term Value, w	6	10	14	18	22

a. $w = 4s + 2$ b. $w = 6s$ c. $w = 3s + 2$ d. $w = 2s + 4$

B 57. Which graphs represent a linear relation?



a. P only b. P, R, and S c. P and S d. P and R

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A

58. Which tables of values represent a linear relation?

i)

x	1	2	3	4	5
y	4	7	12	19	28

ii)

x	0	1	2	3	4
y	0	5	10	15	20

iii)

x	1	2	3	4	5
y	5	9	13	17	21

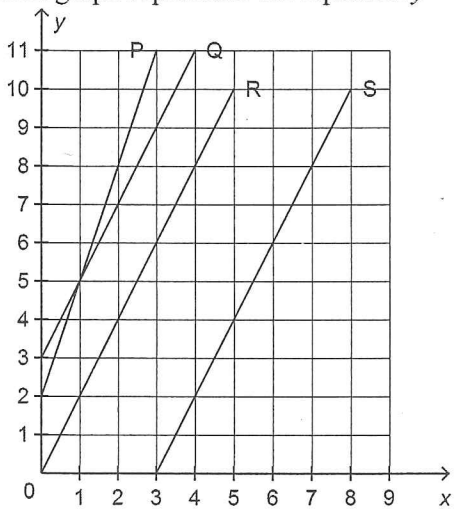
iv)

x	0	1	2	3	4
y	12	11	10	9	8

a. ii, iii, and iv b. ii and iii c. All of these d. i and iv

B

59. Which graph represents the equation $y = 2x + 3$?



a. Line S b. Line Q c. Line P d. Line R

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D

60. Complete the table of values.

$y = 9 - 5x$

x	2	4	6	8
y				

a.

x	2	4	6	8
y	4	–1	–6	–11

c.

x	2	4	6	8
y	4	8	12	16

b.

x	2	4	6	8
y	8	16	24	32

d.

x	2	4	6	8
y	–1	–11	–21	–31

A

61. This table of values represents a linear relation. Complete the table.

x	1	3	5	7
y	9	17		

a.

x	1	3	5	7
y	9	17	25	33

c.

x	1	3	5	7
y	9	17	19	21

b.

x	1	3	5	7
y	9	17	21	25

d.

x	1	3	5	7
y	9	17	45	63

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B 62. Which table of values represents the equation $y = 11 - 4x$?

a.

x	–2	–1	0	1	2
y	5	6	7	8	9

c.

x	–2	–1	0	1	2
y	3	7	11	15	19

b.

x	–2	–1	0	1	2
y	19	15	11	7	3

d.

x	–2	–1	0	1	2
y	–14	–7	0	7	14

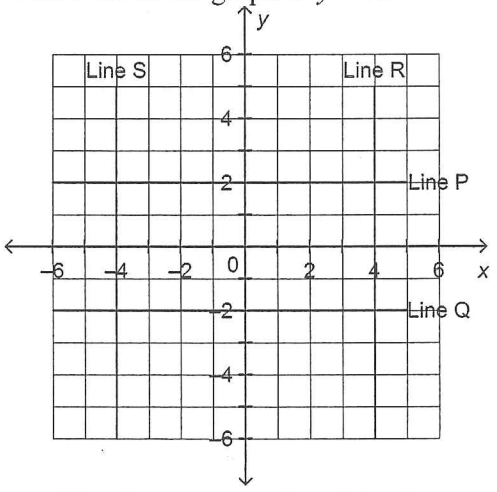
C 63. Sean cycles at an average speed of 5 m/s.
He travels a distance, d metres, in t seconds.
Write an equation that relates d and t.

a. $d = \frac{t}{5}$ b. $d = t + 5$ c. $d = 5t$ d. $t = 5d$

D 64. Which points lie on the graph represented by the equation $y = 14 - 5x$?
P(1, 9), Q(2, 18), R(2, 4), S(0, 9)

a. P and Q b. Q and R c. R and S d. P and R

B 65. Which line is the graph of $y = 2$?



a. Line S b. Line P c. Line Q d. Line R

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A 66. For the equation $4x - 2y = 8$, make a table of values for $x = -2$, 0, and 2.

a.

x	–2	0	2
y	–8	–4	0

c.

x	–2	0	2
y	8	4	1

b.

x	–2	0	2
y	–8	0	1

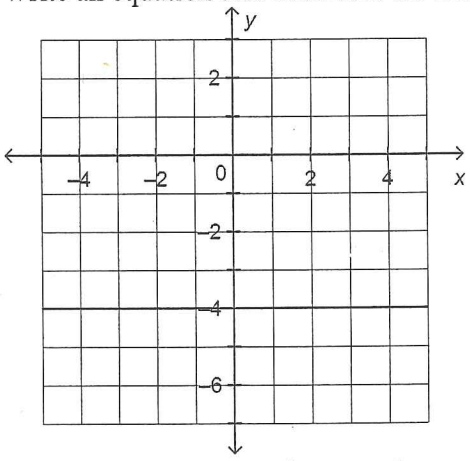
d.

x	–2	0	2
y	0	–4	8

C 67. Describe the graph of the equation $x + 7 = 0$.

a. A vertical line that intersects the x-axis at 7.
b. A horizontal line that intersects the y-axis at –7.
c. A vertical line that intersects the x-axis at –7.
d. A horizontal line that intersects the y-axis at 7.

A 68. Write an equation that describes the line.



a. $y = -4$ b. $x = 4$ c. $y = 4$ d. $x = -4$

A 69. Which equation describes a horizontal line?

i) $x + 9 = 2$
ii) $y + x = 9$
iii) $y - x = 0$
iv) $y + 2 = 9$

a. iv b. ii c. i d. iii

D 70. Which equations describe vertical lines?

i) $x + 5 = 12$
ii) $y - 12 = 5$
iii) $x + y = 5$
iv) $12x = 5$

a. i and iii b. ii and iii c. ii and iv d. i and iv

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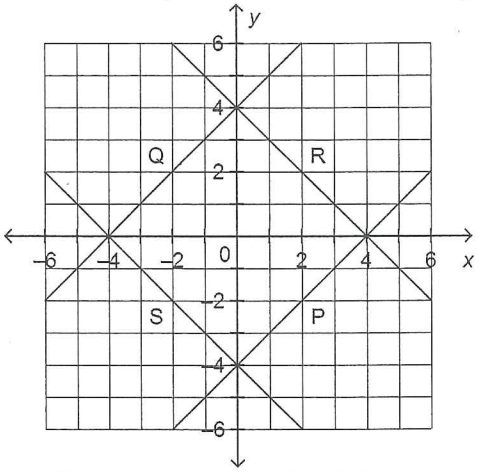
A 71. Which line represents the equation $x + y = 4$?



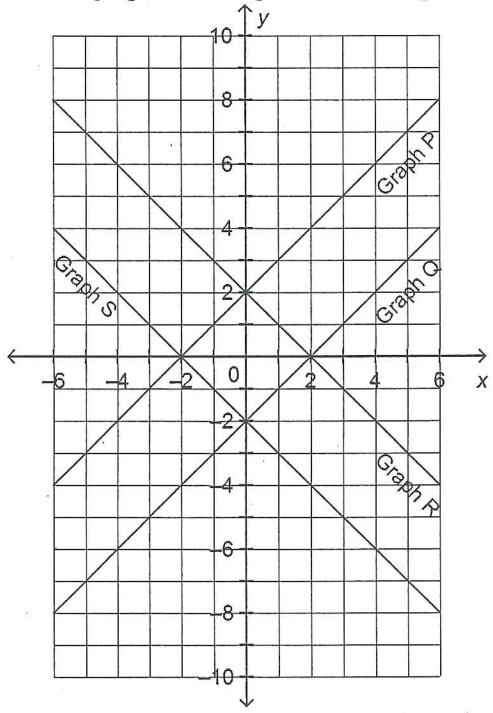
a. Line R b. Line S c. Line P d. Line Q

B 72. Which equations describe oblique lines?

i) $5x + 9 = 14$
ii) $5x + 9y = 14$
iii) $9y + 5 = 14$
iv) $5x = 9y$

a. iii and iv b. ii and iv c. i and iii d. i and iv

B 73. Which graph on this grid has the equation $y = x - 2$?



a. Graph S b. Graph Q c. Graph P d. Graph R

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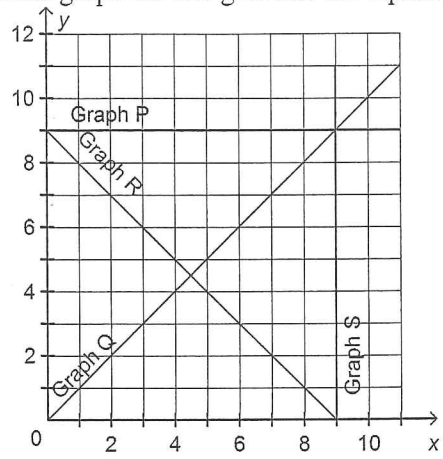
A 74. Which graph on this grid has the equation $x = 9$?



a. Graph S b. Graph Q c. Graph R d. Graph P

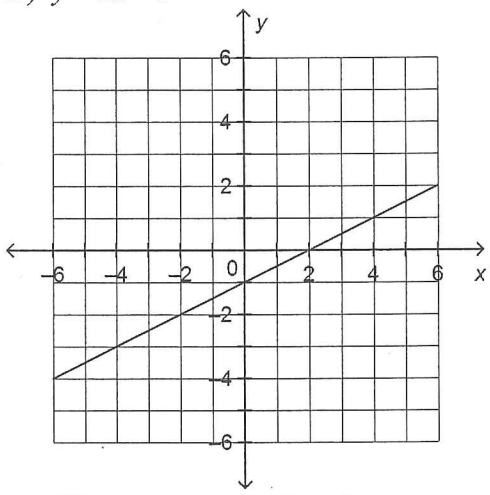
C 75. Which equation describes the graph below?

i) $y = \frac{1}{2}x + 1$

ii) $y = \frac{1}{2}x - 1$

iii) $y = -2x - 1$

iv) $y = 2x - 1$



a. iii b. i c. ii d. iv

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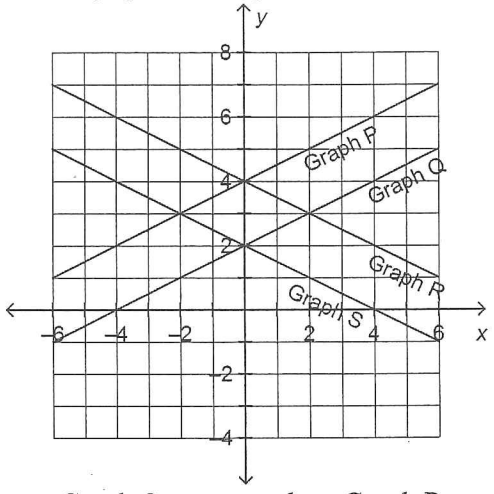
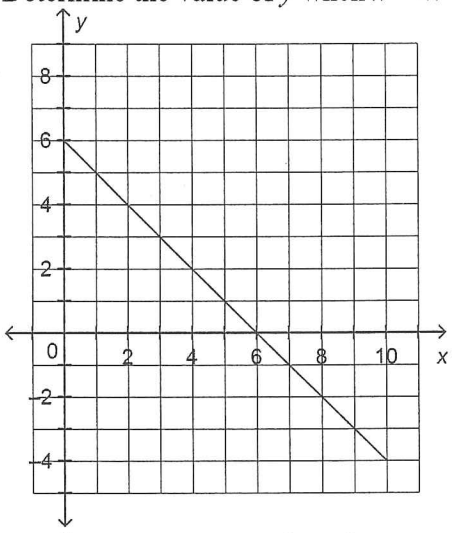
C 76. Which graph on this grid has the equation $x + 2y = 4$?



a. Graph Q b. Graph P c. Graph S d. Graph R

B 77. This graph represents a linear relation.
Determine the value of y when $x = 4$.



a. 0 b. 2 c. 10 d. 6