Name: _____

Compass Worksheets A thru G

Answers are available at the end of each worksheet. The solutions can be viewed online at:
http://www.highlands.edu/site/academic-support-compass-math-practice
PLEASE DO NOT PRINT THE POWERPOINT SOLUTIONS

Compass Worksheet A

A1. If x = -1 and y = 3, what is the value of the expression $3x^3 - 2xy$?

○ A. -9 ○ B. -3 ○ C. 3 ○ D. 9 ○ E. 21

A2. Which of the following expressions represents the product of three less than x and five more than twice x ?

○ A. $2x^2 + 11x + 15$
○ B. $2x^2 - 11x + 15$
○ C. $2x^2 + x - 15$
○ D. $2x^2 - x - 15$
○ E. $2x^2 + 22x + 15$

A3. A student earned scores of 83, 78, and 77 on three of four tests. What must the student score on the fourth test to have an average (arithmetic mean) of exactly 80?

○ A. 80
○ B. 82
○ C. 84
○ D. 85
○ E. 86

A4. What is the equation of the line that contains the points (2, 3) and (14 , - 6)

○ A. $y = \frac{-3}{4}x + 5$

○ B. $y = \frac{-3}{4}x + \frac{9}{2}$

○ C. $y = \frac{3}{4}x + 5$

○ D. $y = \frac{-4}{3}x + \frac{17}{3}$

○ E. $y = \frac{-1}{2}x + \frac{5}{2}$

A5. For all $x \neq \pm 4$, $\frac{x^2 - x - 20}{x^2 - 16} = ?$

○ A. $\frac{x+5}{x-4}$

○ B. $\frac{x+4}{x+4}$

○ C. $\frac{x-5}{x+4}$

○ D. $\frac{x+5}{x+4}$

○ E. $\frac{x-5}{x-4}$

A6. A rope 36 feet long is cut into three pieces, the second piece is four feet longer than the first, the last piece is three times as long as the second. If x represents the length of the first piece, then which equation determines the length of the first piece?

O A. $36 = 5x + 8$
O B. $36 = x + (x + 4) + (3x)$
O C. $36 = 3x + 12$
O D. $36 = x + (x + 4) + 3(x + 4)$
O E. $36 = 3x + 16$

A7. The product $(x^2 + 3)(x - 1)$ is

O A. $x^3 + 3x^2 - x - 3$
O B. $x^2 + 2x - 3$
O C. $3x - 3$
O D. $x^3 - 3$
O E. $x^3 - x^2 + 3x - 3$

A8. If n is an integer which expression must be an even integer?

O A. $2n + 1$
O B. $2n - 1$
O C. $n + 1$
O D. $2n^2$
O E. n^2

A9. If $x = -3$, what is the value of $2x^2 + 3x - 5$?

O A. -22
O B. -6
O C. -5
O D. 4
O E. 22

A10. Which of the following is the complete factorization of $2x^2 - 13x - 24$?

O A. $(2x - 6)(x + 4)$
O B. $(x - 6)(2x + 4)$
O C. $(2x - 3)(x - 8)$
O D. $(2x + 3)(x - 8)$
O E. $2(x + 3)(x - 4)$

Answers: 1C 2D 3B 4B 5E 6D 7E 8D 9D 10D

Compass Worksheet B

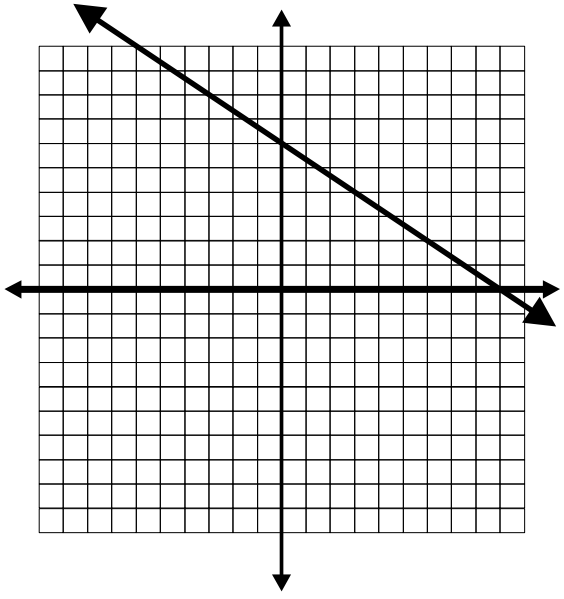
B1. Which of these is the product of (a + 2b) and (c - d)?

○ A. ac + ad + bc - 2bd
○ B. ac - ad + bc - 2bd
○ C. ac - ad + bc - 2bd
○ D. ac - ad + 2bc + 2bd
○ E. ac - ad + 2bc - 2bd

B2. If a = -2 and b = 3, what is the value of the expression 3(a + b)(a - b).

○ A. -5
○ B. 5
○ C. 15
○ D. -15
○ E. 75

B3. This is a graph of which equation?



○ A. $y = -\frac{3}{2}x + 6$

○ B. $y = \frac{3}{2}x + 6$

○ C. $y = \frac{2}{3}x + 6$

○ D. $y = -\frac{2}{3}x + 6$

○ E. $y = -\frac{2}{3}x - 6$

B4. What is the solution to the equation 2(x + 3) - 3(x + 5) = 13 ?

○ A. -22
○ B. -12
○ C. -4
○ D. 5
○ E. 15

B5. Peggy gets paid a weekly salary of D dollars a week plus a commission of 8% on her total sales S. Which expression below best describes Peggy's weekly pay?

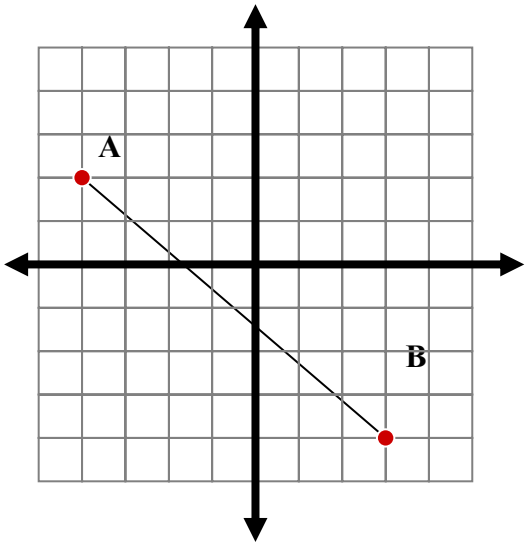
○ A. D + S
○ B. 8D + S
○ C. D + 8S
○ D. D + .08S
○ E. .08(D + S)

B6. Which of these is the product of $(D^3 + 2D^2 - 2D + 3)$ and $(D - 5)$?

○ A. $D^4 + 2D^3 - 2D^2 + 3D$
○ B. $D^4 - 3D^3 - 8D^2 + 13D - 15$
○ C. $D^4 - 3D^3 - 12D^2 - 7D - 15$
○ D. $D^4 + 7D^3 + 12D^2 + 13D + 15$
○ E. $D^4 - 3D^3 - 12D^2 + 13D - 15$

B7. What is the distance from point A to point B?

○ A. 13
○ B. 85
○ C. $\sqrt{5}$
○ D. $\sqrt{13}$
○ E. $\sqrt{85}$



B8. For all $a \neq 0$ and $b \neq 0$, $\dfrac{a^{-3}b^2}{a^5b^{-4}}$

○ A. $\dfrac{a^2}{b^2}$
○ B. $\dfrac{b^3}{a^4}$
○ C. $\dfrac{b^6}{a^2}$
○ D. $\dfrac{b^6}{a^8}$
○ E. $\dfrac{1}{a^2b^2}$

B9. For all a, b, and c, $(a^3 b^2 c)^2$

○ A. $a^5b^4c^2$
○ B. $a^6b^4c^2$
○ C. $a^9b^4c^2$
○ D. $a^5b^4c^3$
○ E. $2a^3b^2c$

B10. For all x, $3(2x + 5) - 4(x - 2) = 3(2x + 2) + 1$

○ A. $x = 9$
○ B. $x = -5$
○ C. $x = 4$
○ D. $x = 3$
○ E. $x = 0$

Answers: 1E 2D 3D 4A 5D 6E 7E 8D 9B 10C

Compass Worksheet C

1. If x = -2 and y = -3, what is the value of the expression $4x^3 - 2xy$?

○ A. 36 ○ B. 20 ○ C. -20 ○ D. –36 ○ E. -44

2. Which of the following expressions represents the product of four more than twice x and six less than x?

○ A. $x^2 - 4x - 12$

○ B. $2(x^2 - 4x - 12)$

○ C. $8x^2 - 48x$

○ D. $2x^2 + 16x + 24$

○ E. $2x^2 - 16x - 24$

3. A student earned scores of 85, 76, and 78 on three of four tests. What must the student score on the fourth test to have an average (arithmetic mean) of exactly 80?

○ A. 79 ○ B. 80 ○ C. 81 ○ D. 82 ○ E. 83

4. Which of the following is an equation of the line that contains the points (2, 3) and (4 , 6)?

○ A. $y = \frac{-3}{2}x$

○ B. $y = \frac{3}{2}x$

○ C. $y = \frac{3}{2}x + 6$

○ D. $y = \frac{2}{3}x$

○ E. $y = \frac{2}{3}x + 6$

5. For all $x \neq \pm 6$, $\frac{x^2 - x - 30}{x^2 - 36} = ?$

○ A. $\frac{x+5}{x-6}$

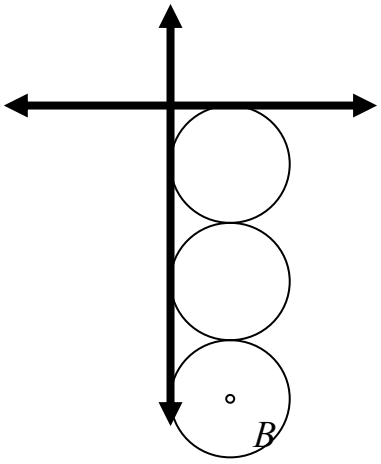
○ B. $\frac{x+6}{x-6}$

○ C. $\frac{x-5}{x+6}$

○ D. $\frac{x+5}{x+6}$

○ E. $\frac{x-5}{x-6}$

6. Each circle has a diameter of 6. What is the location of point B the center of the bottom circle?



O A. (6 –15)

O B. (6, -18)

O C. (3, -15)

O D. (3, -18)

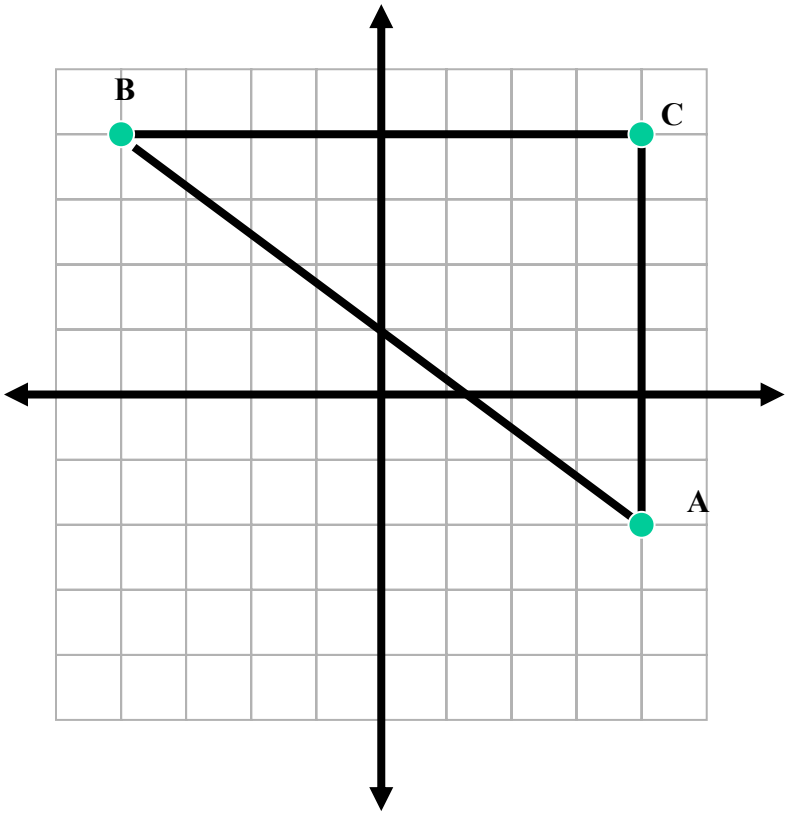
O E. (1, -3)

7. For all x, $(x^2 + 3x + 9)(x - 3)$ is

O A. $x^3 + 3x^2 - x - 3$
O B. $x^2 + 2x - 3$
O C. $3x - 3$
O D. $x^3 - 27$
O E. $x^3 - x^2 + 3x - 3$

8. If $A \circ B = 2A + 3B$, find $4 \circ 5$

O A. 20
O B. 23
O C. 17
O D. 9
O E. 5



9. What is the perimeter of ΔABC?

O A. 8
O B. 10
O C. 14
O D. 24
O E. 28

10. What is the value of $64^{2/3}$?

O A. 4
O B. 16
O C. 21.3
O D. 96
O E. $\frac{128}{3}$

Answers: 1E 2B 3C 4B 5D 6C 7D 8B 9D 10B

Compass Worksheet D

1. If x = -1 and y = -2, what is the value of the expression $2x^2y - 3xy$?
A. -24
B. -10
C. -2
D. 2
E. 10

2. What are the solutions to the quadratic $x^2 - 2x - 48 = 0$?
A. 6 and 8
B. -6 and -8
C. -6 and 8
D. 6 and -8
E. 3 and 16

3. What is the sum of the solutions to the quadratic $x^2 - 2x - 48 = 0$?
A. 14
B. -14
C. 2
D. -2
E. 19

4. What is the sum of the solutions of the quadratic equation $x^2 + 3x = 28$?
A. 3
B. -3
C. 11
D. -11
E. 10

5. What is the sum of the solutions of the quadratic equation $2x^2 - x = 15$?

A. $\frac{1}{2}$ B. $\frac{-1}{2}$ C. $\frac{-11}{2}$ D. $\frac{11}{2}$ E. -1

6. If the equation $x^2 - x = 6$ is solved for x, what is the sum of the solutions?
A. 3
B. 2
C. 5
D. 1
E. -1

7. What are the solutions to the quadratic $x^2 - 5x = -6$?

A. -2, -3
B. 2, 3
C. 1, 6
D. -1, -6
E. -2, 3

8. For all $x \neq 2$, $\dfrac{x^2 - 5x + 6}{x - 2} = ?$

A. (x + 5)
B. (x - 2)
C. (x + 2)
D. (x - 3)
E. (x + 3)

9. If x = -4 is a solution to the equation $x^2 + 11x + K = 0$, then $K = ?$

A. 16
B. 28
C. -28
D. 60
E. -60

10. What are the solutions to the quadratic $x^2 - 10x + 24 = 0$?

A. 4 and 6
B. -4 and 6
C. -4 and -6
D. 2 and -12
E. -2 and 12

Answers: 1B 2C 3C 4B 5A 6D 7B 8D 9B 10A

Compass Worksheet E

E1. What is the value of $\frac{x^2 + 2x - 24}{x + 2}$ when x = -5?

○ A. $\frac{9}{8}$ ○ B. $\frac{11}{8}$ ○ C. $\frac{-11}{3}$ ○ D. -3 ○ E. 3

E2. Simplify $\frac{\sqrt{50}}{3} + \frac{5\sqrt{3}}{6}$

○ A. $\frac{5\sqrt{2}}{3} + \frac{5}{2}$ ○ B. $\frac{5\sqrt{6}}{2}$ ○ C. $\frac{5\sqrt{53}}{6}$ ○ D. $\frac{10\sqrt{2}}{3}$ ○ E. $\frac{10\sqrt{2} + 5\sqrt{3}}{6}$

E3. In the figure below what is the distance between point A and B?

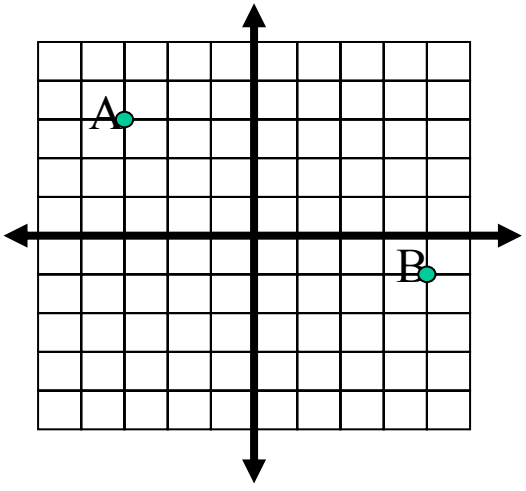
○ A. 11

○ B. 10

○ C. $\sqrt{11}$

○ D. 9

○ E. $\sqrt{65}$



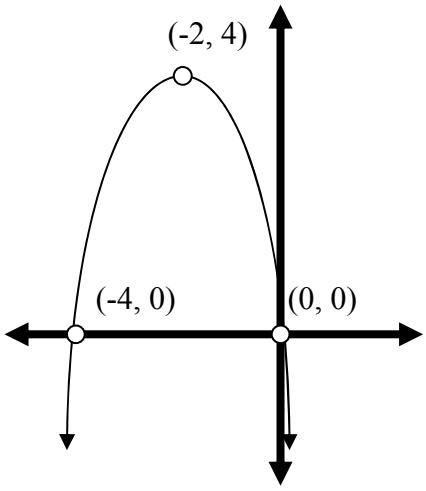
E4. In the standard coordinate plane what is the distance between (-5, 2) and (1, -6)?

○ A. 9 ○ B. 10 ○ C. $\sqrt{11}$ ○ D. 14 ○ E. $\sqrt{14}$

E5. $27^{-2/3}$ =?

○ A. –18 ○ B. $\frac{1}{18}$ ○ C. 9 ○ D. $\frac{-1}{9}$ ○ E. $\frac{1}{9}$

E6. The parabola below is a graph of which equation?



○ A. $y = (x - 2)^2 + 4$

○ B. $y = (x + 2)^2 + 4$

○ C. $y = -(x - 2)^2 + 4$

○ D. $y = -(x + 2)^2 + 4$

○ E. $y = x^2 + 4x + 8$

E7. The solution of the equation below falls between what two integers?

$2x + 8 = 7x + 20$

○ A. -4 and -3 ○ B. -3 and -2 ○ C. -2 and -1 ○ D. 1 and 2 ○ E. 2 and 3

E8. What is the solution of the system of equations below?

$$3x + 4y = a$$
$$2x - 4y = 14a$$

○ A. $(3a, 2a)$
○ B. $(-3a, 2a)$
○ C. $(15a, 11a)$
○ D. $(15a, -11a)$
○ E. $(3a, -2a)$

E9. What is the slope of the line in the standard coordinate plane determined by the equation $2x - 3y = 12$?

○ A. $\frac{3}{2}$ ○ D. $\frac{-2}{3}$

○ B. $\frac{-3}{2}$ ○ E. -4

○ C. $\frac{2}{3}$

E10. For all x and y, $(x + 2y)^2 - 4y(x + y) = ?$

○ A. x^2 ○ B. $x^2 - 4xy$ ○ C. $x^2 - 2xy$ ○ D. $x^2 + 8y^2$ ○ E. $(x + 4y)(x - 4y)$

Answers: 1E 2E 3E 4B 5E 6D 7B 8E 9C 10A

Compass Worksheet F

F1 Which equation best describes the data in this table?

X	0	2	-2
Y	5	1	9

○ A. $y = 4x - 7$ ○ B. $y = x - 6$ ○ C. $y = -2x + 5$ ○ D. $y = 4x + 3$ ○ E. $y = 3x + 5$

F2 For all x, $\frac{20}{\sqrt{x^2+7}} = 5$ $x^2 = ?$

○ A. 9 ○ B. 3 ○ C. 16 ○ D. 7 ○ E. 4

F3 $\frac{\sqrt{48}}{3} + \frac{5\sqrt{5}}{6} =$

○ A. $\frac{13\sqrt{8}}{6}$

○ B. $\sqrt{8}$

○ C. $\frac{8\sqrt{3}+5\sqrt{5}}{6}$

○ D. $\frac{9\sqrt{8}}{9}$

○ E. $4 + \frac{5\sqrt{5}}{6}$

F4 What is the slope of $3x + 2y = 6$?

○ A. 3 ○ B. $\frac{-2}{3}$ ○ C. $\frac{2}{3}$ ○ D. $\frac{3}{2}$ ○ E. $\frac{-3}{2}$

F5 Which of these equations defines a line that is perpendicular to the line given by the equation $y = -2x + 5$?

○ A. $y = \frac{1}{2}x + 5$

○ B. $y = \frac{1}{5}x + 2$

○ C. $y = \frac{2}{5}x + 1$

○ D. $y = \frac{-1}{2}x + 5$

○ E. $y = \frac{-1}{5}x + 2$

F6 In the standard (x, y) plane, what is the distance between $(3\sqrt{5}, 0)$ and $(6\sqrt{5}, 4)$?

○ A. 45 ○ B. 16 ○ C. $\sqrt{61}$ ○ D. 61 ○ E. $\sqrt{29}$

F7 What are the (x, y) coordinates of the point of intersection of the lines determined by the equations $2x - 3y = 4$ and $y = x$?

○ A. (4, 4) ○ B. (–4, –4) ○ C. (–4, 4) ○ D. (4, –4) ○ E. (2, 0)

F8 If $\forall$ is a special operation defined by $(a \forall b) = 3a - 2b$ and $(6 \forall x) = 8$ then $x = ?$

○ A. 2 ○ B. 3 ○ C. 5 ○ D. 4 ○ E. 6

F9 $12x^2 + 11x - 36$ is the product of $(3x - 4)$ and another polynomial. What is the other polynomial?

○ A. $9x - 4$ ○ B. $4x^2$ ○ C. $4x^2 + 9$ ○ D. $4x - 9$ ○ E. $4x + 9$

F10 $\sqrt[4]{\frac{16}{81}}$

○ A. $\frac{4}{9}$ ○ B. $\frac{2}{9}$ ○ D. $\frac{2}{\sqrt[4]{9}}$ ○ C. $\frac{2}{3}$ ○ E. $\frac{4}{20.25}$

Answers: 1C 2A 3C 4E 5A 6C 7B 8C 9E 10C

Compass Worksheet G

G1 Which equation best describes the data in this table?

X	-3	0	3
Y	-6	-4	-2

○ A. $2X + Y = -12$
○ B. $2X = -6$
○ C. $2X - 3Y = 12$
○ D. $2Y = 3X + 12$
○ E. $-3X + Y = -8$

G2 For all x, $\frac{18}{\sqrt{x^2+4}} = 6$ $x^2 = ?$

○ A. 9 ○ B. 3 ○ C. 5 ○ D. 7 ○ E. 4

G3 $\frac{\sqrt{18}}{2} + \frac{\sqrt{32}}{3} =$

○ A. $\sqrt{2}$
○ B. $5\sqrt{10}$
○ C. $\frac{9\sqrt{6}+4\sqrt{2}}{6}$
○ D. $\frac{14}{5}$
○ E. $\frac{17\sqrt{2}}{6}$

G4 For all $a \neq b$, $\frac{\frac{5a}{b}}{\frac{2a}{a-b}} = ?$

○ A. $\frac{10a^2}{ab-b^2}$ ○ B. $\frac{5(a-b)}{2b}$ ○ C. $\frac{2b}{5(a-b)}$ ○ D. $\frac{5b}{2(a-b)}$ ○ E. $\frac{ab-b^2}{10a^2}$

G5 Which of these equations defines a line that is parallel to the line given by the equation y = -0.5x + 5?

○ A. $y = \frac{1}{2}x - 5$
○ B. $y = \frac{1}{5}x + 2$
○ C. $y = \frac{2}{5}x + 1$
○ D. $y = \frac{-1}{2}x + 7$
○ E. $y = \frac{-1}{5}x + 2$

G6 In the standard (x, y) plane, what is the distance between $(3\sqrt{3}, -1)$ and $(6\sqrt{3}, 2)$?

○ A. 6 ○ B. 9 ○ C. $3\sqrt{3}$ ○ D. 27 ○ E. $9+9\sqrt{3}$

G7 What is the solution of the system of equations below?

$$x + 2y = 7a$$
$$3x - 2y = 5a$$

○ A. $(3a, 2a)$
○ B. $(-3a, 2a)$
○ C. $(a, 2a)$
○ D. $(5a, -a)$
○ E. $(3a, -2a)$

G8 For all x, $(x-3)^2 + 3(2x-3) = ?$

○ A. x^2
○ B. $x^2 - 12x$
○ C. $x^2 - 6xy$
○ D. $x^2 + 12x + 18$
○ E. $x^2 - 12x + 18$

G9 $8^{-2/3} = ?$

○ A. –4 ○ D. $\frac{-16}{3}$

○ B. $\frac{-1}{4}$ ○ E. $\frac{1}{4}$

○ C. 4

G10. What is the value of k when $\frac{x^2 - kx + 24}{x - 12} = x - 2$?

○ A. 10 ○ B. -10 ○ C. 14 ○ D. -14 ○ E. 2

Answers: 1C 2C 3E 4B 5D 6A 7A 8A 9E 10C

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