1. Solve the following inequality $|-3(5x+4)+2x+3|<4$.

A. -1$< x < -\frac{5}{13}$

B. $-\frac{5}{26} < x < \frac{1}{4}$

C. $x <-\frac{15}{13}$ or $x > 2$

D. $x <$-1 or $x > -\frac{5}{13}$

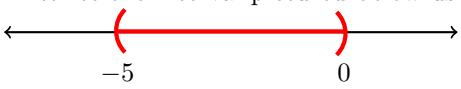
E. $x <-\frac{5}{26}$ or $x > \frac{1}{4}$

F. -3$< x < -\frac{20}{13}$

G. $-\frac{15}{13} < x < 2$

H. $x <$-3 or $x > -\frac{20}{13}$

2. Write the interval pictured below using inequality symbols.



A. $-5 \leq x \leq 0$

B. $-5 \leq x < 0$

C. $-5 < x \leq 0$

D. $-5 < x < 0$

3. Factor the polynomial. $9\theta^2 - 25$

A. $(3\theta - 5)(3\theta - 5)$

B. Not factorable.

C. $(9\theta + 5)(3\theta + 25)$

D. $(9\theta + 5)(3\theta - 25)$

E. $(3\theta + 5)(3\theta + 5)$

F. $(5\theta + 6)(2\theta + 1)$

G. $(3\theta + 5)(3\theta - 5)$

H. $(9\theta - 5)(3\theta - 25)$

4. Factor the expression by grouping. $42yw - 24w\alpha - 35yx + 20x\alpha$

A. $(5x + 4\alpha)(7y + 6w)$

B. $(7y - 4\alpha)(6w + 5x)$

C. $(7y - 4\alpha)(6w - 5x)$

D. $(6w)(5x + 4\alpha + 7y)$

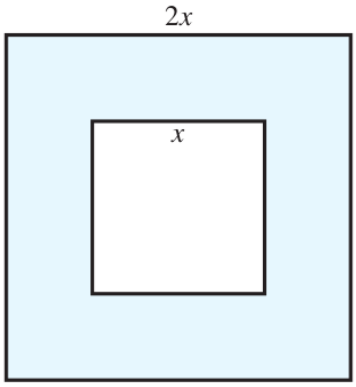
E. $(7y)(5x + 4\alpha + 6w)$

F. $(5x)(7y - 4\alpha + 6w)$

G. $(7y + 4\alpha)(6w + 5x)$

H. $(6w)(7y - 4\alpha + 5x)$

5. Framing a Print A square print is surrounded by a mat and then framed. The width of the square mat is twice that of the print. If the area covered by the mat is 300 in^2, determine the width of the print.



A. The width of the print is 7 in.

B. The width of the print is 9 in.

C. The width of the print is 5 in.

D. The width of the print is 4 in.

E. The width of the print is 6 in.

F. The width of the print is 14 in.

G. The width of the print is 8 in.

H. The width of the print is 10 in.

6. Simplify the expression. $(3s^3 \cdot v^5)^4$

A. $3s^7v^9$

B. $3s^{12}v^{20}$

C. $12s^{12}v^{20}$

D. $12s^7v^9$

E. $12s^{12}v^9$

F. $81s^{12}v^{20}$

G. $81s^7v^9$

H. $81s^{12}v^9$

7. 15 Factor the following quadratic polynomial. $\beta^2 - 11\beta p + 24p^2$

A. $(p + 3\beta)(p - 8\beta)$

B. $(\beta + 3p)(\beta + 8p)$

C. $(\beta - 3p)(\beta - 8p)$

D. $(p - 3\beta)(p + 8\beta)$

E. Not factorable. This trinomial is prime.

F. $(p - 3\beta)(p - 8\beta)$

G. $(\beta - 3p)(\beta + 8p)$

H. $(p + 3\beta)(p + 8\beta)$

8. Factor the following quadratic polynomial. $20v^2 + 117v\theta - 18\theta^2$

A. $(4v - 3\theta)(5v + 6\theta)$

B. $(4v + \theta)(5v - 18\theta)$

C. Not factorable. This trinomial is prime.

D. $(20v + 3\theta)(v - 6\theta)$

E. $(4v - 3\theta)(5v - 6\theta)$

F. $(4v - \theta)(5v + 18\theta)$

G. $(20v - 3\theta)(v + 6\theta)$

H. $(4v + 3\theta)(5v - 6\theta)$

9. Simplify the expression using the product rule for square roots. $\sqrt{1512}$

A. $\sqrt{2310}$

B. $\sqrt{110}$

C. $6\sqrt{42}$

D. $2\sqrt{6}$

E. 15

F. $3\sqrt{5}$

G. $30\sqrt{3}$

H. $2\sqrt{5}$

10. Solve the following linear inequality $-x - 3 < 3x - 4$.

A. $-1 < x$

B. $x > \frac{1}{4}$

C. $\frac{1}{2} < x$

D. $x > 1$

E. $-\frac{3}{4} < x$

F. $x > -\frac{1}{2}$

G. $-\frac{1}{16} < x$

H. $x > \frac{1}{16}$

11. Solve the following linear system by the addition method. $\left\{ \begin{array}{l} 4x - 6y = 4 \\ -2x + 3y = -2 \end{array} \right\}$

A. $(0, 5)$.

B. $(2, 7)$.

C. There is no solution.

D. $(-2, 3)$.

E. $(1, 6)$.

F. $(-5, 0)$.

G. There are infinitely many solutions.

H. $(-3, 2)$.

12. Calculate the slope m of a line passing through the points $(0, -7)$ and $(-5, 2)$

A. Undefined

B. $-\frac{17}{15}$

C. $-\frac{21}{20}$

D. $-\frac{51}{20}$

E. $-\frac{9}{5}$

F. $-\frac{13}{10}$

G. $-\frac{22}{15}$

H. $-\frac{32}{15}$

13. Billy Bob has two test scores in a psychology class. The mean of these scores is 84 and their range is 27. Use this information to write a system of equations and determine both test scores.

A. The scores are 94.5 and 73.5.

B. The scores are 101.5 and 66.5.

C. The scores are 95.5 and 72.5.

D. The scores are 98.5 and 69.5.

E. The scores are 96.5 and 71.5.

F. The scores are 100.5 and 67.5.

G. The scores are 97.5 and 70.5.

H. The scores are 93.5 and 74.5.

14. Expand the square. $(\xi - 2)^2$

A. $4\xi^2 - 1$

B. $\xi^2 + 4$

C. $\xi^2 - 4$

D. $\xi^2 - 4\xi + 4$

E. $\xi^2 + 4\xi - 4$

15. Use the table

x	$-x-2$	2
-5	3	2
-4.5	2.5	2
-4	2	2
-3.5	1.5	2
-3	1	2
-2.5	0.5	2
-2	0	2
-1.5	-0.5	2
-1	-1	2
-0.5	-1.5	2
0	-2	2
0.5	-2.5	2
1	-3	2
1.5	-3.5	2
2	-4	2
2.5	-4.5	2
3	-5	2
3.5	-5.5	2
4	-6	2
4.5	-6.5	2
5	-7	2

to solve the linear system of equations $\left\{ \begin{array}{l} y = -x - 2 \\ y = 2 \end{array} \right\}$.

A. $(0, 6)$

B. $(-4, 2)$

C. $(-7, -1)$

D. $(-8, -2)$

E. $(-6, 0)$

F. $(-5, 1)$

G. $(-1, 5)$

H. $(-2, 4)$

16. A small building contractor plans to add a bricklayer to his full-time crew. He has two bricklayers on a current job that he is considering for this position. On Monday, he observed that these two bricklayers each worked 7 hours and laid a total of 3437 bricks. On Tuesday, the older bricklayer worked 5 hours, the younger bricklayer worked 8 hours, and they laid a total of 3542 bricks. Letting r_1 be the work rate of the older brick layer, and r_2 the work rate of the younger, determine the system of equations which models this situation, and when solved, gives the approximate work rates of both workers.

A. The system is $\left\{ \begin{array}{c} 7(r_1 + r_2) = 3542 \\ 8r_1 + 5r_2 = 3437 \end{array} \right\}$.

B. The system is $\left\{ \begin{array}{c} 7r_1 + r_2 = 3542 \\ 8r_1 + 5r_2 = 3437 \end{array} \right\}$.

C. The system is $\left\{ \begin{array}{c} 7(r_1 + r_2) = 3437 \\ 8r_1 + 5r_2 = 3542 \end{array} \right\}$.

D. The system is $\left\{ \begin{array}{c} 7(r_1 + r_2) = 3542 \\ 5r_1 + 8r_2 = 3437 \end{array} \right\}$.

E. The system is $\left\{ \begin{array}{c} 7r_1 + r_2 = 3437 \\ 5r_1 + 8r_2 = 3542 \end{array} \right\}$.

F. The system is $\left\{ \begin{array}{c} 7(r_1 + r_2) = 3437 \\ 5r_1 + 8r_2 = 3542 \end{array} \right\}$.

G. The system is $\left\{ \begin{array}{c} 7r_1 + r_2 = 3542 \\ 5r_1 + 8r_2 = 3437 \end{array} \right\}$.

H. The system is $\left\{ \begin{array}{c} 7r_1 + r_2 = 3437 \\ 8r_1 + 5r_2 = 3542 \end{array} \right\}$.

17. Simplify the expression by writing it without negative exponents. $\left(\frac{t}{w}\right)^{-5}$

A. $\frac{w^5}{t^5}$

B. $-\frac{w^5}{t^5}$

C. w^5t^5

D. $-\frac{1}{t^5w^5}$

E. $-\frac{t^5}{w^5}$

F. $\frac{1}{t^5w^5}$

G. $-w^5t^5$

H. $\frac{t^5}{w^5}$

18. Use the given table of values for a linear function to determine the equation of this line in slope-intercept form

x	y
0	1
3	-14
6	-29
9	-44
12	-59

A. The equation of the line is $f(x) = -5x + 2$.

B. The equation of the line is $f(x) = -5x - 5$.

C. The equation of the line is $f(x) = -5x + 4$.

D. The equation of the line is $f(x) = -5x - 4$.

E. The equation of the line is $f(x) = -5x + 5$.

F. The equation of the line is $f(x) = -5x + 3$.

G. The equation of the line is $f(x) = -5x - 3$.

H. The equation of the line is $f(x) = -5x + 1$.

19. Multiply the polynomials. $(9)(2a^2 + 6a)$

A. $18a^2 + 54a - 4$

B. $4a^3 + 18a^2 + 54a$

C. $16a^2 + 54a$

D. $18a^2 + 60a$

E. $18a^2 + 54a$

20. Construct a quadratic equation with the following solutions $\theta = \frac{11}{17}$ or $\theta = -\frac{2}{3}$.

A. $9\theta^2 + 27\theta + 10 = 0$

B. $6\theta^2 - 29\theta + 91 = 0$

C. $6\theta^2 + 29\theta + 91 = 0$

D. $51\theta^2 + \theta - 22 = 0$

E. $22\theta^2 + 16\theta - 21 = 0$

F. $22\theta^2 - 16\theta - 21 = 0$

G. $51\theta^2 - \theta - 22 = 0$

H. $9\theta^2 - 27\theta + 10 = 0$

Answers

1. A.
2. D.
3. G.
4. C.
5. H.
6. F.
7. C.
8. G.
9. C.
10. B.
11. G.
12. E.
13. G.
14. D.
15. B.
16. F.
17. A.
18. H.
19. E.
20. D.