Problem	1	2	3	4	5	6	7	8	9	10	11	12
Lesson Origin	7, 10, 13, 14	7, 14	13	13	10	7	7	14	14	7, 8	8, 9	8, 9

Problem	13	14	15	16	17	18	19	20	21	22	23	24	25
Lesson Origin	14	7, 9, 10	8, 9	7, 11, 14	11, 12	12	11	12	11	8	9	8, 11	10

1.

A.

$H(x) = \frac{5}{20}x = \frac{1}{4}x$

$E(x) = \frac{5}{40}x = \frac{1}{8}x$

B.

Hanna's slope is $\frac{1}{4}$. This means she can run 1 kilometer in 4 minutes.

Ester's slope is $\frac{1}{8}$. This means she can run 1 kilometer in 8 minutes.

C.

The graph is continuous because the domain would be written as an interval. Even though the times are only recorded every five minutes, the runners were running continuously.

D.

$H(20) = 5$

$E(20) = 2.5$

After 20 minutes, Hanna completed 5 km, and Ester had completed 2.5 km. Hannah is the winner of the race.

2. D

There is no work for this question.

Distractor Rationale:

A. This uses parenthesis instead of a square bracket for the range at 2.

B. The range is incorrect.

C. The domain and range are reversed.

3. C

There is no work for this question.

Distractor Rationale:

A and B say that the correlation is negative while the graph shows a positive correlation.

D says there is weak correlation, however an r-value of 0.94 demonstrates a strong correlation.

4. B
There is no work for this question.
Distractor Rationale:
A and C have a negative r-value when the graph is positive.
C and D have a negative slope when the graph is positive.

5. A
$m = 7.25$; $(5, 58.25)$
$y - 58.25 = 7.25(x - 5)$
$y - 58.25 = 7.25x - 36.25$
$y = 7.25x + 22$
Distractor Rationale:
B. This has the correct slope, but does not use the point (5, 58.25).
C. This equation is not in slope-intercept form.
D. This point incorrectly uses 58.25 as the y-intercept.

6. D
There is no work for this question.
Distractor Rationale:
A, B, and C all pass the vertical line test and therefore are functions.

7. B
$h(-4) = 3(-4) + 5$
$h(-4) = -12 + 5$
$h(-4) = -7$
Distractor Rationale:
A. This is the solution if $h(x)$ is replaced with -4.
C. This ignores the correct sign of the number.
D. This substitutes 4 rather -4.

8. B
$d = -3 - (-6) = 3$
$a_n = a_1 + d(n - 1)$
$a_{15} = -6 + 3(15 - 1)$
$a_{15} = -6 + 3(14)$
$a_{15} = -6 + 42$
$a_{15} = 36$
Distractor Rationale:
A and D switch a_1 and the common difference.
C and D incorrectly calculates a_{15} using n instead of $n - 1$.

9. C
$d = -\frac{3}{2} - (-2) = \frac{1}{2}$
Distractor Rationale:
A. This is a_1.
B. This is the incorrect sign for the common difference.
D. This is the opposite sign of a_1.

10. C
There is no work for this question.
Distractor Rationale:
A and B do not have $x = y$, rather $x = -y$.
D. The ordered pair $(-1, 1)$ is incorrect for the function rule.

11. D
$m = \frac{7}{3}$; $(-3, -2)$
$y + 2 = \frac{7}{3}(x + 3)$
Distractor Rationale:
A and B have the slope as $\frac{run}{rise}$.
B and C have the point written as (y, x).

12. D
$m = 2$, $b = 0$
$g(x) = 2x + 0$ or $g(x) = 2x$
Distractor Rationale:
A and B have negative slopes when the graphed line is positive.
B and C invert the rise and run.

13. B
There is no work for this question.
Distractor Rationale:
A. The coefficients for b and t are reversed.
C. The variable terms should not be multiplied together.
D. This uses (208, 3) as an ordered pair but this is not true from the given information.

14. D
$m = \frac{(6 - 2)}{(-5 - (-3))} = \frac{4}{-2} = -2$
$y - 2 = -2(x + 3)$
$y - 2 = -2x - 6$
$y = -2x - 4$
Distractor Rationale:
A and C incorrectly calculate slope as run over rise.
A and B have the incorrect y-intercept.

15. C
There is no work for this question.
Distractor Rationale:
A and B represent positive sloped lines.
B and D have positive y-intercepts when in the equation it is negative.

16. D
There is no work for this question.
Distractor Rationale:
A and B represent equations of vertical lines and line p is horizontal.
C uses the x-coordinate of the vertical line rather than the y-coordinate for the equation.

17. B
The value equal to y in the equation must be equal to the y-coordinate of the given point.
Distractor Rationale:
A. uses the x-coordinate rather than the y-coordinate for the equation.
C and D represent lines perpendicular to the given line.

18. D
Slope perpendicular: $-\frac{2}{3}$; $(-6, 1)$

$y - 1 = -\frac{2}{3}(x + 6)$

Distractor Rationale:
A and C do not find the *opposite* of the given slope.
A and B use the point $(1, -6)$.

19. A

$$y - 3 = \frac{4}{3}(x + 3)$$
$$y - 3 = \frac{4}{3}x + 4$$
$$y = \frac{4}{3}x + 7$$
$$-\frac{4}{3}x + y = 7$$
$$4x - 3y = -21$$

Distractor Rationale:
B and C have the incorrect sign for the constant, 21.
C and D have the incorrect sign for the coefficient of y.

20. B
$3x - 2y = 6$; $m = -(\frac{A}{B}) = -(\frac{3}{-2}) = \frac{3}{2}$

$$y - 1 = \frac{3}{2}(x - 1)$$
$$y - 1 = \frac{3}{2}x - \frac{3}{2}$$
$$y = \frac{3}{2}x - \frac{1}{2}$$
$$-\frac{3}{2}x + y = -\frac{1}{2}$$
$$3x - 2y = 1$$

Distractor Rationale:
A, C, and D are not parallel to the given equation because the slopes are not equal when $m = -(\frac{A}{B})$.

21. C
x-intercept occurs when $y = 0$
$9x + 0 = 3$
$9x = 3$
$x = \frac{1}{3}$
Distractor Rationale:
A and B are both negative. Since there are no negative terms in the equation, the x-intercept cannot be negative.
A. calculated the x-intercept as $\frac{A}{C}$ instead of $\frac{C}{A}$.
D. This is the y-intercept.

22. D
Compare the y-intercepts of the graphs to determine the translation.
Distractor Rationale:
A and C say the lines are perpendicular when they are parallel.
A and B misidentify the bottom line as $f(x)$ instead of the top line.

23. A
The graph needs to show an increase, a constant, and then a decrease from left to right.
Distractor Rationale:
B. Only demonstrates spending, not saving
C. This does not demonstrate a stop in saving or spending.
D. This graph is on the incorrect axisbecause the x-axis represents the independent variable.

24. B
y-intercept occurs when $x = 0$, or $\frac{C}{B}$
$5(0) - 6y = 3$
$-6y = 3$
$y = -\frac{1}{2}$
Distractor Rationale:
A. This is $\frac{B}{C}$ rather than $\frac{C}{B}$.
C. This is $\frac{C}{A}$ rather than $\frac{C}{B}$.
D. This is $\frac{A}{C}$ rather than $\frac{C}{B}$.

25. C
There is no work for this problem.
Distractor Rationale:
A and C show \$50 when this represents pounds of fruit.
B reverses the ordered pair.