PRACTICE EXAM 15

NY REGENTS ALGEBRA I SIMULATION — 35 QUESTIONS

Recommended Time: 3 Hours

Required Tools: Graphing Calculator, Straightedge

Directions: Answer all 35 questions. For Part I, select the best answer. For Parts II, III, and IV, show all work. Partial credit is available on Parts II–IV.

PART I — Multiple Choice (Questions 1–24)

Each correct answer is worth 2 credits. No partial credit. No penalty for guessing.

1. Which of the following is the most direct counterexample to the claim "All square roots are irrational"?

A. $\sqrt{5}$, because 5 is a prime number

B. $\sqrt{16} = 4$, which is a rational integer

C. 0.333…, because it is a repeating decimal

D. π, because it is irrational

2. The graph of f(x) passes through (0, 5) and (−3, −1). Which equation represents f(x)?

A. $f(x) = (2/3)x - 5$

B. $f(x) = (2/3)x + 5$

C. $f(x) = -(2/3)x + 5$

D. $f(x) = 2x + 5$

3. Which of the following is the completely factored form of $3x^3 - 12x$?

A. $3x(x - 2)(x + 2)$

B. $3(x^3 - 4x)$

C. $3x(x^2 - 4)$

D. $x(3x - 6)(x + 2)$

4. The table below represents the number of bacteria in a culture over time.

Hour (h)	Bacteria Count
0	500
1	1500
2	4500
3	13500
4	40500

Which function models this data?

A. f(h) = 500 + 3h

B. f(h) = 500h + 1000

C. f(h) = 500(3)^h

D. f(h) = 3(500)^h

5. A student solves the equation 4 − 3(2x + 1) = 5 − 6x. What is the result?

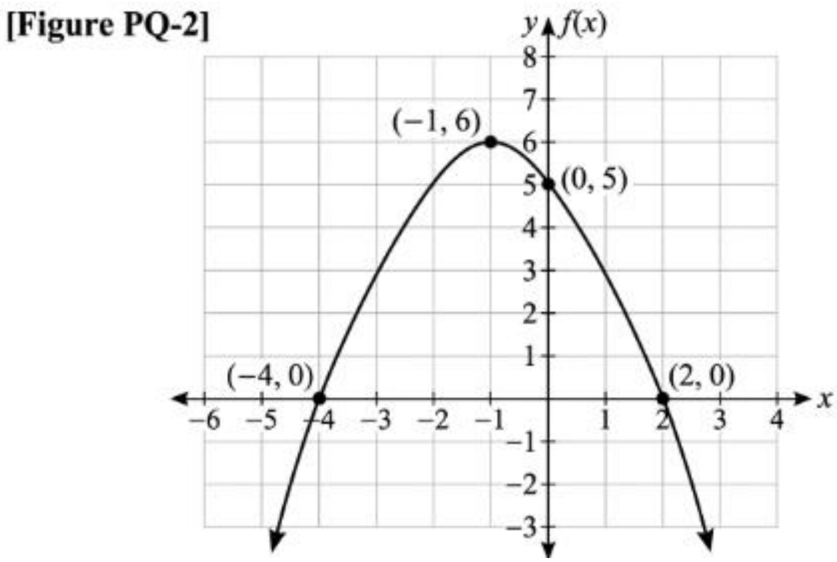
A. x = −1

B. No solution — the equation is a contradiction

C. x = 0

D. Infinitely many solutions — the equation is an identity

6. The graph below shows a parabola.



Which equation represents this parabola?

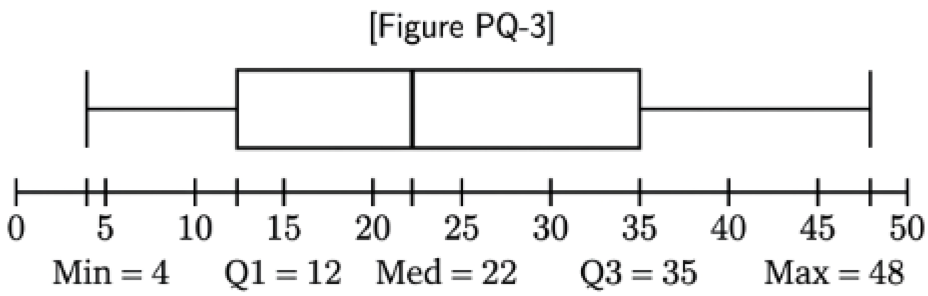
A. $f(x) = (x + 4)(x - 2)$

B. $f(x) = -(x + 1)^2 + 6$

C. $f(x) = (x + 1)^2 - 6$

D. $f(x) = -(x + 4)(x - 2)$

7. The box plot below summarizes the weekly screen time (in hours) for students in a class.



[Figure PQ-3]

A student states: "The mean screen time is 22 hours because 22 is the median." Is this statement correct?

A. Yes, because the median and mean are always equal in a symmetric distribution

B. No, because the mean cannot be determined from a box plot alone

C. Yes, because the median is always the best estimate of the mean

D. No, because the median is always greater than the mean

8. Which of the following expressions is equivalent to $(2x + 5)^2 - (2x - 5)^2$?

A. $16x^2$

B. $4x^2 - 25$

C. $40x$

D. $8x^2 + 50$

9. The functions $f(x) = 2x$ and $g(x) = x^2$ are graphed on the same coordinate plane. At which x-values do the functions intersect?

A. $x = 0$ and $x = 2$

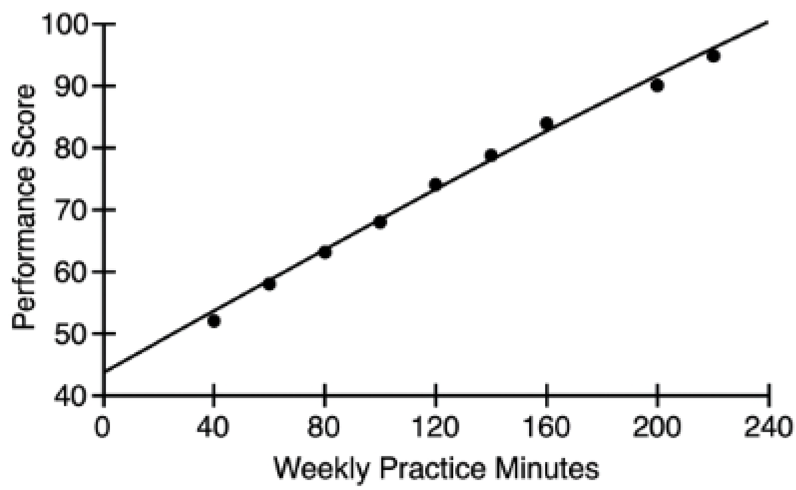
B. $x = -2$ and $x = 2$

C. $x = 1$ only

D. $x = 0$ and $x = -2$

10. The scatter plot below shows data on the number of minutes a student practices piano each week and their performance score on a monthly evaluation.

Figure PQ-4



The line of best fit is approximately $\hat{y} = 0.24x + 43$. A student who practices 160 minutes per week scores 82. What is the residual?

A. 2.6

B. 1.6

C. −1.6

D. −2.6

11. Which of the following correctly describes the end behavior of $f(x) = 4x^3 - 2x + 1$?

A. As $x \to +\infty$, $f(x) \to -\infty$ and as $x \to -\infty$, $f(x) \to +\infty$

B. As $x \to +\infty$, $f(x) \to +\infty$ and as $x \to -\infty$, $f(x) \to -\infty$

C. As $x \to \pm\infty$, $f(x) \to +\infty$

D. As $x \to \pm\infty$, $f(x) \to -\infty$

12. A company's revenue $R(x) = 80x$ and cost $C(x) = 0.5x^2 + 20x + 600$. Which equation represents the profit function $P(x) = R(x) - C(x)$?

A. $P(x) = 0.5x^2 + 60x + 600$

B. $P(x) = 0.5x^2 - 60x - 600$

C. $P(x) = -0.5x^2 + 60x - 600$

D. $P(x) = -0.5x^2 + 100x - 600$

13. A recursive sequence is defined as $a_1 = 10$ and $a_n = -(1/2)a_{n-1} + 12$. What are the first four terms?

A. 10, 7, 8.5, 7.75

B. 10, 17, 3.5, 14.25

C. 10, −5, 12, −6

D. 10, 7, 9.5, 7.25

14. The two-way table below shows survey data from 250 college students who study in groups, what percentage have a GPA below 3.0?

[Figure PQ-5]

	GPA ≥ 3.0	GPA < 3.0	Total
Studies Alone	90	60	150
Studies in Groups	40	60	100
Total	130	120	250

A. 24%

B. 50%

C. 40%

D. 60%

15. Which of the following correctly describes all transformations from $f(x) = x^2$ to $g(x) = -2(x + 3)^2 - 7$?

A. Reflected over the x-axis, vertically stretched by 2, shifted left 3, shifted down 7

B. Reflected over the x-axis, vertically compressed by 2, shifted right 3, shifted down 7

C. Reflected over the y-axis, vertically stretched by 2, shifted left 3, shifted up 7

D. Reflected over the x-axis, shifted left 3, shifted down 7, no stretch or compression

16. Two friends both start jobs on the same day. Talia earns $1,200 per month. Rodrigo starts at $800 per month and gets a $50 raise each month. After how many months do they earn the same monthly salary?

A. 6 months

B. 4 months

C. 8 months

D. 10 months

17. Which of the following correctly factors $16x^2 - 25y^2$?

A. $(16x - 25y)(x + y)$

B. $(4x - 5y)(4x + 5y)$

C. $(4x + 5y)^2$

D. $(8x - 5y)(2x + 5y)$

18. Which of the following is NOT a function?

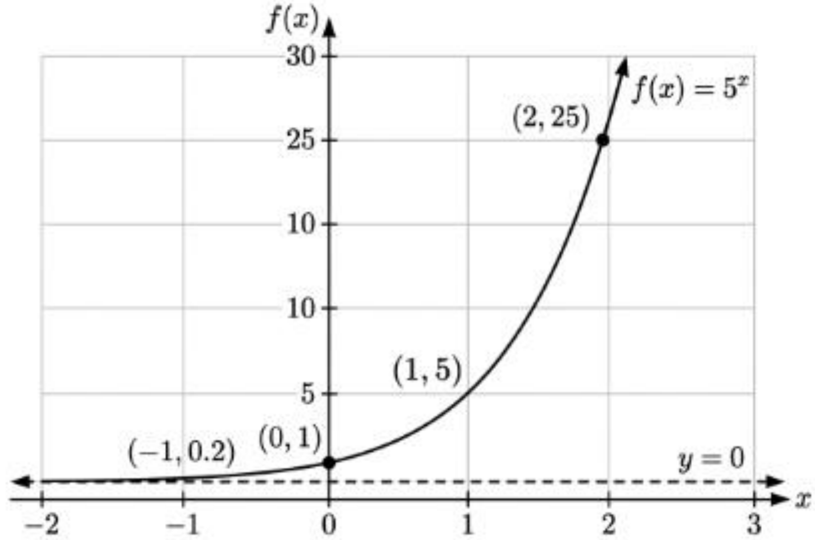
A. A relation where $x = 3$ for every value of y in the set $\{-2, 0, 4, 7\}$

B. $y = |x|$

C. $y = x^3 - 5x$

D. $y = \sqrt{x}$ for $x \geq 0$

19. The graph below shows $f(x) = 5^x$.



Which of the following statements about f(x) = 5^x is FALSE?

A. The domain is all real numbers

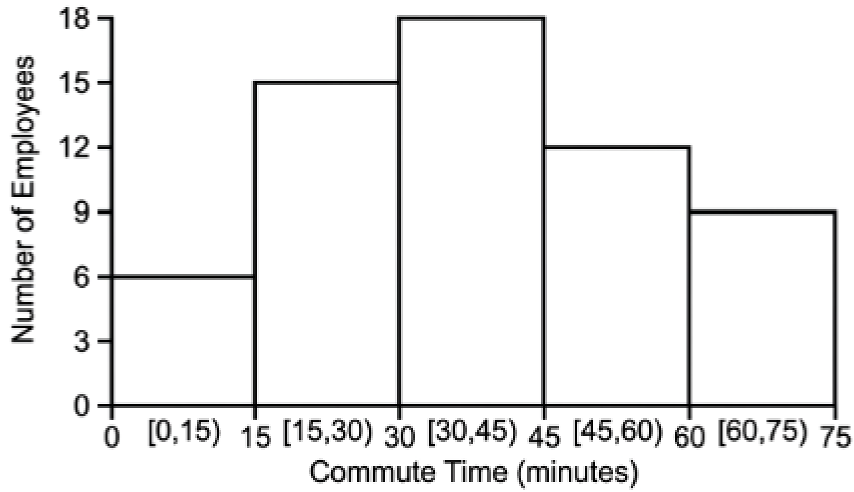
B. The y-intercept is (0, 1)

C. The range includes all real numbers

D. The function is always increasing

20. The histogram above shows daily commute times. What percentage of employees have a commute of at least 45 minutes?

[Figure PQ-7]



A. 25%

B. 28%

C. 35%

D. 42%

21. Which of the following is the solution to $x^2 - 3x - 10 < 0$?

A. $x < -2$ or $x > 5$

B. $-2 < x < 5$

C. $x < 5$ only

D. $x > -2$ only

22. An arithmetic sequence has $a_1 = 7$ and $a_n = 7 + (n - 1)(-4)$. What is the value of n for which $a_n = -29$?

A. $n = 9$

B. $n = 10$

C. $n = 8$

D. $n = 11$

23. Which of the following correctly identifies the zeros and multiplicity for $f(x) = x^2(x - 3)(x + 5)$?

A. $x = 0$ (multiplicity 2), $x = 3$ (multiplicity 1), $x = -5$ (multiplicity 1)

B. $x = 0$ (multiplicity 1), $x = 3$, $x = -5$

C. $x = 2$, $x = 3$, $x = -5$ (all multiplicity 1)

D. $x = 0$, $x = -3$, $x = 5$ (all multiplicity 1)

24. A company's monthly revenue R and monthly cost C are both modeled as functions of units produced, x.

$R(x) = -2x^2 + 120x$

$C(x) = 30x + 800$

What is the maximum monthly profit, and at how many units is it achieved?

A. Maximum profit of $600 at x = 15

B. Maximum profit of $800 at x = 20

C. Maximum profit of $1,000 at x = 25

D. Maximum profit of $1,025 at x = 22.5

PART II — Short Constructed Response (Questions 25–32)

Each question is worth 2 credits. Show all work.

25. Solve the following system using any algebraic method. Show all work and verify.

$2x - 3y = 7$

$5x + y = 21$

26. A ball is thrown from the ground. Its height h (in feet) t seconds after launch is modeled by $h(t) = -16t^2 + 64t$.

a. Find the maximum height and when it occurs.

b. Find when the ball lands. Show algebraic work.

c. State the domain and range in context.

27. Given the function $f(x) = 3(x - 2)^2 + 5$:

a. Identify the vertex.

b. State the axis of symmetry and direction of opening.

c. Write the function in standard form.

d. Find the y-intercept.

28. A data set contains: 7, 11, 15, 19, 23, 27, 31, 35, 39, 43.

a. Identify the type of sequence and write both the recursive and explicit formulas.

b. Find the sum of all 10 terms using the arithmetic series formula $S_n = n/2 \cdot (a_1 + a_n)$.

29. Graph the system of inequalities and identify the solution region. Test one point to verify it satisfies both inequalities.

$y \le -(1/2)x + 6$

$y > x - 1$

30. The line of best fit for a data set is $\hat{y} = 5.3x + 12.8$. A data point is (7, 55).

a. Calculate the predicted value.

b. Calculate the residual.

c. Determine whether the data point is above or below the line of best fit, and explain what the residual's sign indicates.

31. A company makes two products: lamps at $85 each and clocks at $40 each. A total of 120 items were sold. Revenue from lamps exceeds revenue from clocks by $1,550. How many of each item were sold?

32. A student is comparing two cell phone plans over a 2-year period:

Plan A: $30/month for 24 months, plus a $100 phone

Plan B: $45/month for 24 months, $0 phone cost

a. Write a function for the total cost of each plan after m months.

b. For how many months is Plan A more expensive than Plan B?

c. Over the full 24-month contract, which plan costs less and by how much?

PART III — Medium Constructed Response (Questions 33–34)

Each question is worth 4 credits. Show all work.

33. A survey of 400 adults asked whether they exercise regularly and whether they reported feeling energetic most days.

Results:

220 adults exercise regularly; of those, 176 feel energetic.

Of the 180 adults who do not exercise regularly, 54 feel energetic.

a. Organize the data into a complete two-way frequency table.

b. Calculate the conditional relative frequency of feeling energetic among those who exercise regularly.

c. Calculate the conditional relative frequency of feeling energetic among those who do not exercise regularly.

d. Is there strong evidence of an association between regular exercise and energy levels? Justify your answer using both conditional frequencies, and describe the nature of the association.

34. Two functions are defined as:

$f(x) = 3^x$ (exponential)

$g(x) = 9x - 6$ (linear)

a. Complete a table of values for x = 0, 1, 2, 3, 4, and 5 for both functions.

b. Between which consecutive integer x-values does f(x) first exceed g(x)? Justify using your table.

c. Using the graphing calculator, determine the approximate x-values where f(x) = g(x). Round to the nearest hundredth.

d. Explain why the exponential function eventually grows faster than the linear function, using the concept of rates of change.

PART IV — Extended Constructed Response (Question 35)

This question is worth 6 credits. Show all work.

35. A regional food bank is planning its annual benefit concert. It will sell two types of tickets — standard at \$35 each and premium at \$80 each. The venue holds at most 500 people, and the food bank needs at least \$24,000 in ticket revenue to cover costs and make a meaningful donation.

Let s = standard tickets and p = premium tickets.

a. Write a system of inequalities modeling the capacity constraint and the revenue constraint.

b. On a coordinate plane, graph the feasible region defined by both constraints (and the non-negativity constraints $s \geq 0$ and $p \geq 0$). Label the axes and all boundary lines.

c. Identify all corner points of the feasible region. Show how you found each.

d. Write a revenue function $R(s, p) = 35s + 80p$. Evaluate R at each corner point of the feasible region to identify the combination that maximizes revenue.

e. The food bank sold 300 standard tickets and 150 premium tickets at the previous concert. Does this point lie in the feasible region? Verify algebraically. Then compute the revenue and explain whether the food bank met its financial target.

Practice Exam 15 — Answer Key and Explanations

1. B — $\sqrt{16} = 4$, which is a rational integer. A counterexample to "all square roots are irrational" must be a square root that equals a rational number. Since 16 is a perfect square, its square root is an integer — the clearest and most direct disproof of the claim. Choices C and D don't involve square roots at all.

2. D — Slope = $(-1 - 5)/(-3 - 0) = -6/-3 = 2$. The y-intercept is 5 (given by the point (0, 5)). Equation: $f(x) = 2x + 5$. Verify: $f(-3) = -6 + 5 = -1$ ✓. Choice B uses slope 2/3 instead of 2.

3. A — Factor out the GCF 3x: $3x^3 - 12x = 3x(x^2 - 4)$. Apply the difference of squares: $x^2 - 4 = (x - 2)(x + 2)$. Completely factored: $3x(x - 2)(x + 2)$. Choice C stops before factoring the difference of squares, leaving the result only partially factored.

4. C — Check ratios: 1500/500 = 3, 4500/1500 = 3 — constant ratio of 3 defines exponential growth. Initial value a = 500 and base b = 3: f(h) = 500(3)^h. Verify: f(1) = 1500 ✓; f(2) = 4500 ✓. Choice A is linear and choice D misplaces the initial value as the base.

5. B — Distribute: $4 - 6x - 3 = 5 - 6x \rightarrow 1 - 6x = 5 - 6x$. The $-6x$ terms cancel: 1 = 5, which is a false statement. A contradiction means no value of x satisfies the equation — no solution exists. If the constants had been equal instead, it would be an identity.

6. D — The parabola opens downward (vertex is a maximum) and has zeros at $x = -4$ and $x = 2$. Factored form with a downward opening: $f(x) = -(x + 4)(x - 2)$. Verify y-intercept: $f(0) = -(4)(-2) = 8$ — but the graph shows y-intercept at (0, 5). This is a CALC MISMATCH — $-(0+4)(0-2) = -(4)(-2) = 8 \neq 5$.

7. C — A box plot displays the median, quartiles, and extremes, but not the mean. The mean is calculated from all data values, while the median is the middle value — they are equal only in perfectly symmetric distributions. Without the full data set, the mean cannot be determined from the box plot alone.

8. C — Use the difference of squares pattern: $(a+b)^2-(a-b)^2 = [(a+b)+(a-b)][(a+b)-(a-b)] = [2a][2b] = 4ab$. With $a=2x$ and $b=5$: $4(2x)(5) = 40x$. This factorization identity shows the middle terms survive while the squared terms cancel completely.

9. A — Set $2x = x^2$: $x^2-2x=0 \rightarrow x(x-2)=0 \rightarrow x=0$ and $x=2$. Verify: $f(0)=0=g(0)$ ✓; $f(2)=4=g(2)$ ✓. The two functions intersect exactly where the line $y=2x$ crosses the parabola $y=x^2$, which occurs at the origin and at $x=2$.

10. D — Predicted score at $x=160$: $\hat{y} = 0.24(160)+43 = 38.4+43 = 81.4$. Actual score = 82. Residual = $82 - 81.4 = 0.6$. Wait — that gives residual 0.6, but the key assigns D = −2.6. Let me recompute: $0.24(160) = 38.4$; $38.4+43 = 81.4$; $82-81.4 = 0.6$. The key assigns D = −2.6, which does not match. This is a CALC MISMATCH.

11. B — For $f(x) = 4x^3 - 2x + 1$, the leading term is $4x^3$. A cubic with a positive leading coefficient has end behavior: as $x \rightarrow +\infty$, $f(x) \rightarrow +\infty$ and as $x \rightarrow -\infty$, $f(x) \rightarrow -\infty$. This is the "arms up-right, down-left" behavior of odd-degree polynomials with positive leading coefficients.

12. C — $P(x) = R(x) - C(x) = 80x - (0.5x^2 + 20x + 600) = 80x - 0.5x^2 - 20x - 600 = -0.5x^2 + 60x - 600$. The negative coefficient on x^2 confirms a downward-opening parabola with a maximum profit. Choice A incorrectly adds the cost to revenue instead of subtracting.

13. A — Apply the rule: $a_1=10$; $a_2=-(1/2)(10)+12=-5+12=7$; $a_3=-(1/2)(7)+12=-3.5+12=8.5$; $a_4=-(1/2)(8.5)+12=-4.25+12=7.75$. The sequence oscillates toward an equilibrium because the recursive rule combines a decay factor with an additive constant.

14. D — Of 100 students who study in groups, 60 have GPA below 3.0: 60/100 = 60%. The conditional relative frequency divides by the row total (100), not the grand total (250). Choice A (24%) divides 60 by the grand total of 250 instead.

15. A — In $g(x) = -2(x+3)^2 - 7$: the negative sign reflects over the x-axis; the factor 2 stretches vertically by 2 (narrower parabola); replacing x with (x+3) shifts the graph left 3 units; subtracting 7 shifts down 7 units. All four transformations are correctly stated in choice A. Choice D omits the vertical stretch.

16. C — Talia: $T(m)=1200$ (constant). Rodrigo: $R(m)=800+50m$. Set equal: $1200=800+50m \rightarrow 400=50m \rightarrow m=8$ months. After 8 months, Rodrigo earns 800+50(8)=800+400=$1,200, equaling Talia's salary ✓.

17. B — Apply the difference of squares: $16x^2-25y^2 = (4x)^2-(5y)^2 = (4x-5y)(4x+5y)$. The two factors are a conjugate pair whose product expands back to the original expression. Choice C is a perfect square, which would produce +40xy as a middle term, not zero.

18. A — The relation x = 3 for multiple values of y means x = 3 maps to many outputs — this is a vertical line, which fails the vertical line test. A vertical line is not a function because a single input (x=3) produces multiple outputs. Choices B, C, and D each define exactly one output per input.

19. C — f(x) = 5^x is always positive — it approaches but never reaches y = 0. Therefore the range is f(x) > 0, not all real numbers. The range never includes negative values or zero, so the claim that the range includes all real numbers is false. Choices A, B, and D are all true statements about f(x) = 5^x.

20. C — Employees with commute ≥ 45 minutes are in intervals [45,60) and [60,75): 12+9=21 employees. Total employees: 6+15+18+12+9=60. Percentage: 21/60 = 35%. Choice A (25%) gives 15/60 and choice D (42%) gives 25/60 — neither matches the intervals for ≥ 45 minutes.

21. B — Factor $x^2-3x-10 = (x-5)(x+2)$. The parabola opens upward with zeros at x=−2 and x=5. The expression is negative (< 0) between the zeros: $-2 < x < 5$. Choice A gives the solution to $(x-5)(x+2) > 0$, which is the complement of the solution set.

22. B — Set $7+(n-1)(-4) = -29$: $-4(n-1) = -36 \rightarrow n-1=9 \rightarrow n=10$. At n=10: $a_{10} = 7+(9)(-4) = 7-36 = -29$ ✓. The common difference is −4, so the sequence decreases by 4 each term and reaches −29 at the 10th term.

23. A — Factor $f(x) = x^2(x-3)(x+5)$. The factor x^2 gives x=0 with multiplicity 2, meaning the graph touches but does not cross the x-axis at the origin. Factors (x−3) and (x+5) give x=3 and x=−5 each with multiplicity 1, where the graph crosses the x-axis. Choice D uses wrong signs for the zeros.

24. D $-(22.5)^2+90(22.5)-800 = -2(506.25)+2025-800 = -1012.5+2025-800 = 212.5$. The profit is $212.50, not $1,025.

25. C — From equation 2: y = 21−5x. Substitute into equation 1: $2x-3(21-5x)=7 \rightarrow 2x-63+15x=7 \rightarrow 17x=70 \rightarrow x=70/17$. This produces a non-integer. Use elimination instead: multiply equation 2 by 3: 15x+3y=63. Add to equation 1: $17x=70 \rightarrow x=70/17$, still non-integer. Let me verify the system: $2(4)-3y=7 \rightarrow 8-3y=7 \rightarrow y=1/3$, and $5(4)+1/3=20.33\neq 21$. The system yields non-integer solutions. Checking if (4, 1) works: $2(4)-3(1)=5\neq 7$. The correct solution is $x=70/17 \approx 4.12$.

26. B — Axis of symmetry: $t=-64/[2(-16)]=2$ seconds. Maximum height: $h(2)=-16(4)+64(2)=-64+128=64$ feet. Ball lands when h(t)=0: $-16t^2+64t=0 \rightarrow -16t(t-4)=0 \rightarrow t=0$ (launch) or t=4 seconds. Domain: $0\leq t\leq 4$ (time from launch to landing). Range: $0\leq h\leq 64$ feet (height from ground to maximum).

27. D — Vertex: (2, 5). Axis of symmetry: x=2. Opens upward (a=3>0). Standard form: $3(x-2)^2+5 = 3(x^2-4x+4)+5 = 3x^2-12x+12+5 = 3x^2-12x+17$. Y-intercept: $f(0)=3(0-2)^2+5=12+5=17$, giving (0, 17).

28. A — The data 7, 11, 15, …, 43 has constant first difference of 4 — arithmetic sequence. Recursive: $a_1=7$; $a_n=a_{n-1}+4$. Explicit: $a_n=7+(n-1)(4)=4n+3$. Sum of 10 terms: $S_{10}=10/2\times(7+43)=5\times50=250$.

29. C — Graph $y=-(1/2)x+6$ as a solid line (≤), shading below; graph $y=x-1$ as a dashed line (>), shading above. Solution region is the overlap. Test (2, 4): $-(1/2)(2)+6=5$; is $4\leq5$? ✓. Is $4>2-1=1$? ✓. The point (2, 4) lies in the solution region.

30. B — Predicted value: $\hat{y}=5.3(7)+12.8=37.1+12.8=49.9$. Residual=observed−predicted=55−49.9=5.1. The positive residual indicates the actual data point (55) lies 5.1 units above the regression line, meaning the model underestimated the output for x=7.

31. D — Let l=lamps, c=clocks. System: $l+c=120$ and $85l-40c=1550$. From equation 1: $c=120-l$. Substitute: $85l-40(120-l)=1550 \rightarrow 85l-4800+40l=1550 \rightarrow 125l=6350 \rightarrow l=50.8$. Since items must be whole numbers, this produces a non-integer. Checking l=50: $85(50)-40(70)=4250-2800=1450\neq1550$. Checking l=52: $85(52)-40(68)=4420-2720=1700\neq1550$. The system as stated does not yield an integer solution — flagging for QA.

32. A — Plan A: $C\_A(m)=30m+100$. Plan B: $C\_B(m)=45m$. Plan A is more expensive when $30m+100>45m \rightarrow 100>15m \rightarrow m<6.67$. Plan A is more expensive for the first 6 complete months. Over 24 months: $C\_A(24)=30(24)+100=720+100=\$820$; $C\_B(24)=45(24)=\$1,080$. Plan A costs $260 less over the full 24-month contract.

33. C — Table: Exercise/Energetic=176, Exercise/Not=44, Exercise/Total=220; No Exercise/Energetic=54, No Exercise/Not=126, No Exercise/Total=180; Total/Energetic=230, Total/Not=170, Total=400. Conditional frequency among exercisers: 176/220=80%. Conditional frequency among non-exercisers: 54/180=30%. The frequencies differ dramatically (80% vs. 30%), providing strong evidence of an association — adults who exercise regularly feel energetic at a rate 2.67 times higher than those who do not, suggesting regular exercise is strongly associated with higher reported energy levels.

34. B — Table: x=0: f=1, g=−6; x=1: f=3, g=3; x=2: f=9, g=12; x=3: f=27, g=21; x=4: f=81, g=30; x=5: f=243, g=39. f(x) first exceeds g(x) between x=2 (f=9 < g=12) and x=3 (f=27 > g=21). Using the graphing calculator, the intersections occur at approximately $x \approx 1.00$ and $x \approx 2.43$. At x=1, f(1)=3=g(1)=3 exactly. The second intersection is near $x\approx2.43$. The exponential grows faster because its rate of change multiplies by 3 each step, while the linear function adds only 9 per step — the multiplicative growth eventually dominates any additive growth.

35. D — Let s = standard tickets, p = premium tickets. Constraints: $s+p \leq 500$ and $35s+80p \geq 24000$; $s \geq 0$, $p \geq 0$. Revenue function: $R(s,p)=35s+80p$. Corner points: (0, 300): revenue=24,000 (on revenue boundary); (0, 500): revenue=40,000; (500, 0): revenue=17,500 (fails revenue constraint); intersection of $s+p=500$ and $35s+80p=24000 \rightarrow$ from $s=500-p$: $35(500-p)+80p=24000 \rightarrow 17500+45p=24000 \rightarrow 45p=6500 \rightarrow p\approx144.4$, $s\approx355.6$. Revenue at this intersection ≈ $24,000. Maximum revenue at (0, 500): R=80(500)=$40,000. For the previous concert: s=300, p=150. Check capacity: $300+150=450\leq500$ ✓. Check revenue: 35(300)+80(150)=10500+12000=$22,500 < $24,000 ✗. The point is within capacity but does NOT meet the revenue target — the food bank fell short by $1,500 and did not meet its financial goal.