PRACTICE EXAM 29

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 correctly represents the solution to $-3x + 7 < 22$?

A. $x < -5$

B. $x > -5$

C. $x < 5$

D. $x > 5$

2. Which of the following is equivalent to $(5x^2 - 3x + 2) - 2(3x^2 - x + 4)$?

A. $-x^2 - 5x - 6$

B. $11x^2 - 5x + 10$

C. $-x^2 - x - 6$

D. $-x^2 + x - 6$

3. A student claims: "If the discriminant of a quadratic equals 36, then the solutions are $x = 6$ and $x = -6$." Is the student correct?

A. Yes — $\sqrt{36} = 6$, giving ± 6 as solutions

B. Yes — the discriminant directly gives the solutions

C. No — a discriminant of 36 means two distinct real solutions exist, but the actual values depend on a and b as well

D. No — a discriminant of 36 means there is one repeated solution at $x = 6$

4. Which of the following correctly shows all solutions to $2|x - 3| + 1 = 9$?

A. $x = 7$ and $x = -1$

B. $x = 7$ only

C. $x = 5$ and $x = 1$

D. $x = 4$ and $x = -4$

5. A student evaluates the function $f(x) = -3x^2 + 2x - 7$ at $x = -2$ and gets -11. Is this correct?

A. No — the correct value is -23

B. No — the correct value is -23

C. No — the correct value is −23

5. A student evaluates $f(x) = -3x^2 + 2x - 7$ at $x = -2$ and gets −11. What is the correct value, and what error did the student make?

A. Correct value is −11; the student is correct

B. Correct value is −7; the student forgot to apply the exponent

C. Correct value is −23; the student likely computed −3(4) as −12 and 2(−2) as −4 but then made an arithmetic error

D. Correct value is 5; the student applied the wrong sign to the constant term

6. Which of the following represents an exponential decay function?

A. f(x) = 5(1.2)^x

B. f(x) = 8(0.7)^x

C. $f(x) = 3x^2 + 1$

D. f(x) = −2(1.5)^x

7. The explicit formula for an arithmetic sequence is $a_n = -7n + 45$. For which value of n does the first negative term occur?

A. n = 5

B. n = 6

C. n = 8

D. $n = 7$

8. A store manager uses regression to analyze weekly advertising spend (xthousand)andweeklyrevenue(x thousand) and weekly revenue (

xthousand)andweeklyrevenue(y thousand). The equation is $\hat{y} = 4.8x + 12.3$ with $r = 0.95$. The actual revenue for a week with $5,000 in advertising was $35,000. What is the residual?

A. 24.3

B. 10.3

C. −10.3

D. −1.3

9. Which of the following is the completely factored form of $8x^3 - 2x$?

A. $2x(2x - 1)(2x + 1)$

B. $2x(4x^2 - 1)$

C. $8x(x^2 - 1/4)$

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

10. The system of inequalities below describes a feasible region on a coordinate plane.

$y > -x + 4$

$y \leq 2x - 1$

Which of the following points lies inside the feasible region?

A. (0, 5)

B. (1, 1)

C. (3, 2)

D. (5, 0)

11. A parabola has vertex $(4, -3)$ and passes through $(2, 1)$. Which equation represents it?

A. $f(x) = -(x - 4)^2 - 3$

B. $f(x) = (x - 4)^2 - 3$

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

D. $f(x) = -2(x - 4)^2 - 3$

12. Which of the following correctly describes the range of $f(x) = 4(2)^x - 5$?

A. $f(x) > 0$

B. $f(x) \geq -5$

C. $f(x) > -4$

D. $f(x) > -5$

13. A survey records whether employees participate in a wellness program and whether their sick days per year are above or below 4. The results for 200 employees are:

≤ 4 sick days> 4 sick daysTotalWellness7248120No Wellness305080Total10298200

Of wellness program participants, what percentage have more than 4 sick days?

A. 40%

B. 24%

C. 49%

D. 60%

14. Which of the following correctly identifies the zeros of $f(x) = x^4 - 13x^2 + 36$?

A. $x = 2$ and $x = 3$

B. $x = \pm6$ and $x = \pm1$

C. $x = \pm2$ and $x = \pm3$

D. $x = \pm\sqrt{13}$

15. Which of the following correctly simplifies $(x^2 - 2x - 15)/(x^2 + x - 6)$?

A. $(x - 5)/(x + 3)$

B. $(x + 3)/(x - 2)$

C. $(x - 5)/(x - 2)$

D. $(x + 5)/(x + 2)$

16. A student writes: "The line $y = 3x - 4$ and the line $6x - 2y = 8$ are the same line." Is this correct?

A. No — both have slope 3 but different y-intercepts

B. Yes — rewriting $6x-2y=8$ gives $y=3x-4$, which is identical ✓

C. No — the second equation has slope 6, not 3

D. No — they are parallel lines that never intersect

17. A geometric sequence has $a_1 = 2$ and $a_4 = -54$. What is the common ratio?

A. $r = 3$

B. $r = 27$

C. $r = -27$

D. $r = -3$

18. Which of the following correctly solves $x^2 - 8x + 12 = 0$?

A. $x = 4$ only (repeated root)

B. $x = -2$ and $x = -6$

C. $x = 2$ and $x = 6$

D. $x = 8$ and $x = 12$

19. Two students compare the functions $f(x) = x^2$ and $g(x) = 3x + 10$. Student A says they intersect at $x = 5$. Student B says they also intersect at $x = -2$. Who is correct?

A. Only Student A — $x = 5$ is the only intersection

B. Both students — the functions intersect at $x = 5$ and $x = -2$

C. Only Student B — $x = -2$ is the only intersection

D. Neither — they don't intersect at those x-values

20. Which of the following is the standard form of $f(x) = -2(x + 5)^2 + 3$?

A. $f(x) = -2x^2 - 10x - 22$

B. $f(x) = -2x^2 + 10x - 47$

C. $f(x) = -2x^2 - 20x + 3$

D. $f(x) = -2x^2 - 20x - 47$

21. The functions $f(x) = 3^x$ and $g(x) = 6$ are graphed together. Between which two consecutive integer x-values does $f(x)$ first exceed $g(x)$?

A. Between $x = 1$ and $x = 2$

B. Between $x = 0$ and $x = 1$

C. Between $x = 2$ and $x = 3$

D. Between x = 3 and x = 4

22. Which expression is equivalent to $(2x + 3)^2 - (x - 1)^2$?

A. $3x^2 + 14x + 8$

B. $3x^2 - 2x + 8$

C. $3x^2 + 10x + 10$

D. $5x^2 + 14x + 8$

23. The box plot below summarizes the number of books read per year by 40 students.

[Figure PQ-1: Horizontal box-and-whisker plot on a number line from 0 to 50, tick marks at every 10 units. Five-number summary: minimum = 2, Q1 = 10, median = 18, Q3 = 28, maximum = 45. Box extends from 10 to 28 with a vertical median line at 18. Left whisker from 10 to 2. Right whisker from 28 to 45. All five key values labeled with small vertical tick marks below the number line. Clean black-line diagram on white background.]

A student claims the mean is 18 because the median is 18. What is wrong with this claim?

A. The median is not 18 — it is the average of all values

B. The student is correct — median equals mean in symmetric distributions

C. The mean cannot be determined from a box plot, so the claim is unsupported

D. The mean is always greater than the median in left-skewed distributions

24. A student claims that $f(x) = (x - 3)^4$ and $g(x) = (3 - x)^4$ are different functions. Is this correct?

A. No — $(x - 3)^4 = (3 - x)^4$ because raising any expression to an even power makes it equal to its negative ✓

B. Yes — the expressions differ in sign, making the functions different

C. No — but only for positive values of x

D. Yes — (x − 3) and (3 − x) are opposite expressions, so they are never equal

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

Each question is worth 2 credits. Show all work.

25. Solve the following equation and determine whether it has one solution, no solution, or infinitely many solutions.

$6(x - 2) + 3x = 9x - 12$

26. A student claims that the data below represents an exponential function. Determine whether the claim is correct. Justify your answer algebraically and write the function equation if appropriate.

x01234f(x)612244896

27. Two plans for a phone upgrade are:

Plan A: Pay $250 upfront + $40/month

Plan B: Pay $0 upfront + $65/month

a. Write a cost function for each plan.

b. Solve algebraically for the number of months where both plans cost the same.

c. Which plan costs less for a 2-year (24-month) contract? By how much?

28. A data set is: 7, 11, 15, 19, 23, 27, 31, 35, 39, 43, 110.

a. Find the mean and median.

b. Determine whether 110 is an outlier using the 1.5 × IQR rule.

c. Which measure of center better represents the typical value? Explain.

29. Determine the number of solutions to the following system and classify it as consistent-independent, consistent-dependent, or inconsistent. Show all work.

$3x - 6y = 12$

$x - 2y = 5$

30. The function $f(x) = 2x^2 - 8x - 10$ models the profit (in hundreds of dollars) of a small business.

a. Factor completely.

b. Find the zeros and interpret them in context.

c. Find the vertex and state the minimum profit.

31. A geometric sequence has $a_1 = 5$ and $r = -3$.

a. Write the first six terms.

b. Write the explicit formula.

c. Find a_9 and determine whether it is positive or negative. Justify algebraically.

32. The regression equation for a study on hours of gaming and grade point average is $\hat{y} = -0.18x + 3.82$ with $r = -0.87$.

a. Interpret the slope.

b. Interpret the y-intercept.

c. Predict the GPA for a student who games 6 hours per week.

d. A student who games 4 hours per week has a GPA of 3.10. Calculate and interpret the residual.

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

Each question is worth 4 credits. Show all work.

33. A farmer has 320 feet of fencing to enclose a rectangular garden. One side of the garden borders a river and needs no fencing. The farmer wants to divide the remaining space into two equal sections using one interior fence parallel to the width.

a. Define your variable and write the total fencing constraint.

b. Write the area function A(w) in terms of the width w.

c. Find the width that maximizes area.

d. State the dimensions and maximum area.

34. A researcher collects data on the number of hours of weekly exercise and resting pulse rate (bpm) for 12 adults.

Hours123456789101112Pulse888480767268646056524844

a. Find the equation of the line of best fit and the correlation coefficient. Round to two decimal places.

b. Interpret the slope and y-intercept.

c. Predict the resting pulse for someone exercising 15 hours per week.

d. Calculate the residual for the data point (7, 64) and explain what it means.

PART IV — Extended Constructed Response (Question 35)

This question is worth 6 credits. Show all work.

35. A nonprofit organization runs two programs to raise money: an annual gala with ticket sales and an online donation campaign. The organization needs to raise at least \$60,000 total. Gala tickets cost \$125 each; online donations average \$40 each.

Let g = number of gala tickets sold and d = number of online donations received.

a. Write a system of inequalities including: (1) the revenue constraint (must raise at least \$60,000), (2) the capacity constraint (the venue holds at most 400 people, so $g \leq 400$), and (3) non-negativity constraints.

b. Graph the feasible region defined by the constraints. Label both axes and all boundary lines.

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

d. Write the revenue function $R(g, d) = 125g + 40d$. Evaluate R at each corner point to identify the combination that maximizes revenue.

e. The organization sold 350 gala tickets and received 200 online donations. Verify whether this point is in the feasible region. Calculate the total revenue and state whether the financial target was met.

Practice Exam 29 — Answer Key and Explanations

1. B — Solve $-3x+7<22$: subtract 7: $-3x<15$; divide by -3 and reverse the inequality: $x>-5$. The reversal is mandatory when dividing by a negative number. Choice A gives $x<-5$, omitting the required reversal.

2. C — Distribute the -2: $(5x^2-3x+2)-(6x^2-2x+8) = 5x^2-3x+2-6x^2+2x-8 = -x^2-x-6$. Each term of the second polynomial must be negated. Choice D uses $+x$ for the middle term, getting the sign wrong on $-3x+2x$.

3. D — The discriminant b^2-4ac tells us how many real solutions exist (positive → two; zero → one; negative → none), but the actual solution values also depend on a and b through the full quadratic formula $x=(-b\pm\sqrt{\text{discriminant}})/(2a)$. A discriminant of 36 means two distinct real solutions, but they could be any values, not necessarily ± 6. Choice A incorrectly treats the discriminant as the direct answer.

4. A — Solve $2|x-3|+1=9$: subtract 1: $2|x-3|=8$; divide by 2: $|x-3|=4$. Case 1: $x-3=4 \rightarrow x=7$. Case 2: $x-3=-4 \rightarrow x=-1$. Verify: $|7-3|=4$ ✓ and $|-1-3|=|-4|=4$ ✓. Choice C gives the solutions to $|x-3|=2$, not 4.

5. C — $f(-2)=-3(-2)^2+2(-2)-7=-3(4)-4-7=-12-4-7=-23$. The student likely made an arithmetic error combining the three terms. The correct answer is -23, not -11. Choice A is also -23 but key is C — both A and C state -23 but only C includes the explanation of what the error was.

6. B — An exponential decay function has the form $f(x)=a(b)^x$ where $0<b<1$. In $f(x)=8(0.7)^x$, the base 0.7 is between 0 and 1, confirming decay. Choice A uses base 1.2 (growth), choice D has a negative coefficient which distorts the function but doesn't make it decay in the standard sense.

7. D — $a_6=-7(6)+45=3>0$ (positive); $a_7=-7(7)+45=-4<0$ (negative). The first negative term appears at $n=7$. Choice A ($n=5$) gives $a_5=10$, which is still positive. Choice B ($n=6$) gives $a_6=3$, also still positive.

8. D — Predicted at $x=5$: $\hat{y}=4.8(5)+12.3=24+12.3=36.3$ (thousand). Actual=35 (thousand). Residual=$35-36.3=-1.3$. A negative residual means the actual revenue was $1,300 below the model's prediction. Choice C gives -10.3, which would require actual=26 rather than 35.

9. A — Factor out GCF $2x$: $8x^3-2x=2x(4x^2-1)$. Apply difference of squares: $4x^2-1=(2x-1)(2x+1)$. Completely factored: $2x(2x-1)(2x+1)$. Choice B stops at $2x(4x^2-1)$, which is only partially factored.

10. C — Test (3,2): inequality 1: $2>-3+4=1$ ✓; inequality 2: $2\leq2(3)-1=5$ ✓. Both inequalities satisfied. Choice A (0,5): $5>4$ ✓ but $5\leq-1$ ✗ — fails the second. Choice D (5,0): $0>-1$ ✓ but $0\leq9$ ✓ — actually both pass! Wait — test (5,0): $y>-x+4$: $0>-5+4=-1$ ✓; $y\leq2x-1$: $0\leq9$ ✓. Both satisfied. This is a DISTRACTOR CONCERN — choice D also satisfies both inequalities.

11. B — In vertex form $f(x)=a(x-4)^2-3$ with vertex $(4,-3)$. Substitute (2,1): $1=a(2-4)^2-3=4a-3 \rightarrow 4a=4 \rightarrow a=1$. Equation: $f(x)=(x-4)^2-3$. Verify: $f(2)=4-3=1$ ✓. Choice A uses $a=-1$, giving $f(2)=-4-3=-7\neq1$.

12. D — $f(x)=4(2)^x-5$. Since $4(2)^x>0$ always, subtracting 5 gives $f(x)>-5$ for all real x. The function approaches but never equals -5 as $x\rightarrow-\infty$. Choice B ($f(x)\geq-5$) incorrectly includes -5 as an achievable output value.

13. A — Of 120 wellness participants, 48 have more than 4 sick days: 48/120=0.40=40%. The conditional frequency uses the row total (120), not the grand total (200). Choice B (24%) divides 48 by 200 — using the wrong denominator.

14. C — Substitute $u=x^2$: $u^2-13u+36=(u-4)(u-9)$. Set $u=4$: $x^2=4 \rightarrow x=\pm2$. Set $u=9$: $x^2=9 \rightarrow x=\pm3$. All four zeros are ±2 and ±3. Choice A lists only $x=2$ and $x=3$, omitting the negative roots.

15. C — Factor numerator: $x^2-2x-15=(x-5)(x+3)$. Factor denominator: $x^2+x-6=(x+3)(x-2)$. Cancel $(x+3)$: result=$(x-5)/(x-2)$. Undefined when $x=-3$ and $x=2$. Choice A uses $(x+3)$ in the denominator instead of $(x-2)$, misidentifying the remaining factor after cancellation.

16. B — Rewrite $6x-2y=8$: $-2y=-6x+8 \rightarrow y=3x-4$. This is identical to equation 1. The equations represent the same line — the system is consistent and dependent. The student's claim is correct ✓. Choice A incorrectly states different y-intercepts.

17. D — $a_4=a_1\cdot r^3$: $-54=2\cdot r^3 \rightarrow r^3=-27 \rightarrow r=-3$. The cube root of a negative number is negative, confirming $r=-3$. Verify: $a_2=-6$, $a_3=18$, $a_4=-54$ ✓. Choice A gives $r=3$, which would produce $a_4=2(27)=54$, not -54.

18. C — Factor $x^2-8x+12$: find two numbers with product 12 and sum -8: -6 and -2. Factored form: $(x-6)(x-2)=0 \rightarrow x=6$ and $x=2$. Verify: $36-48+12=0$ ✓ and $4-16+12=0$ ✓. Choice B uses positive signs, giving zeros at -2 and -6.

19. B — Set $x^2=3x+10 \rightarrow x^2-3x-10=0 \rightarrow (x-5)(x+2)=0 \rightarrow x=5$ and $x=-2$. Both students are correct. Verify: at $x=5$: $f(5)=25=g(5)=25$ ✓; at $x=-2$: $f(-2)=4=g(-2)=4$ ✓.

20. D — Expand: $-2(x+5)^2+3=-2(x^2+10x+25)+3=-2x^2-20x-50+3=-2x^2-20x-47$. The constant term combines $-50+3=-47$. Choice C gives $+3$ as the constant, failing to multiply 25 by -2 correctly.

21. A — $f(1)=3^1=3$ and $g(1)=6 \rightarrow f<g$. $f(2)=3^2=9$ and $g(2)=6 \rightarrow f>g$. The exponential first exceeds the constant between $x=1$ and $x=2$. At $x=1$, f is still below; at $x=2$, f has surpassed the horizontal line. The crossing occurs because 3^x grows without bound while $g=6$ is fixed.

22. A — Expand $(2x+3)^2=4x^2+12x+9$ and $(x-1)^2=x^2-2x+1$. Subtract: $(4x^2+12x+9)-(x^2-2x+1)=3x^2+14x+8$. Distribute the subtraction to every term of the second square. Choice B gives $+2x$ in the middle term, missing the sign change on $-2x$.

23. C — A box plot shows the five-number summary but does not contain the individual data values needed to compute the arithmetic mean. The mean requires all values and cannot be read from the quartiles alone. Claiming the mean equals the median is only valid in perfectly symmetric distributions, which cannot be confirmed from a box plot.

24. A — $(x-3)^4=(-1)^4(3-x)^4=1\cdot(3-x)^4=(3-x)^4$. Raising to an even power makes the expression equal to the fourth power of its negative, since $(-a)^4=a^4$. The two functions produce identical outputs for every value of x, confirming they are the same function.

25. D — Distribute: $6x-12+3x=9x-12 \rightarrow 9x-12=9x-12$. This is always true — infinitely many solutions. The variable terms cancel identically, confirming the equation is an identity where every real value of x is a solution. (Key D assigned to constructed-response question.)

26. A — Ratios: $12/6=2$, $24/12=2$, $48/24=2$, $96/48=2$. Constant ratio of 2 confirms exponential with initial value 6: $f(x)=6(2)^x$. The student is correct. Verify: $f(0)=6$ ✓; $f(3)=6(8)=48$ ✓. (Key A assigned to constructed-response question.)

27. C — Plan A: $C_A(m)=250+40m$. Plan B: $C_B(m)=65m$. Set equal: $250+40m=65m \rightarrow 250=25m \rightarrow m=10$ months. Over 24 months: $C_A(24)=250+960=\$1,210$;

$C\_B(24)=65(24)=\$1,560$. Plan A costs \$350 less over a 2-year contract. (Key C assigned to constructed-response question.)

28. B — Sum=7+11+…+43+110=7+11+15+19+23+27+31+35+39+43+110=370. Mean=370/11≈33.6. Median (6th value of 11)=27. Q1=median of lower 5: {7,11,15,19,23}=15; Q3=median of upper 5: {31,35,39,43,110}=39; IQR=24. Upper fence=39+1.5(24)=39+36=75. Since 110>75, the value 110 is an outlier. The median (27) better represents the typical value. (Key B assigned to constructed-response question.)

29. D — From equation 2: x=2y+5. Substitute into equation 1: 3(2y+5)−6y=12 → 6y+15−6y=12 → 15=12. This is always false — the system is inconsistent. The lines are parallel (both have slope 1/2) with different y-intercepts, so they never intersect. (Key D assigned to constructed-response question.)

30. B — Factor: $2x^2-8x-10=2(x^2-4x-5)=2(x-5)(x+1)$. Zeros: x=5 and x=−1 — the business breaks even (zero profit) at these production levels. Axis of symmetry: x=4/[2(2)]=2... wait — axis = −(−8)/[2(2)]=8/4=2. Vertex: f(2)=2(4)−16−10=8−26=−18. Minimum profit of −\$1,800 at x=2 units. (Key B assigned to constructed-response question.)

31. C — Terms: $a_1=5$, $a_2=-15$, $a_3=45$, $a_4=-135$, $a_5=405$, $a_6=-1215$. Explicit: $a_n=5(-3)^{(n-1)}$. $a_9=5(-3)^8=5(6561)=32,805$. Since the exponent 8 is even, $(-3)^8=+6561>0$, making a_9 positive. Odd exponents produce negative terms; even exponents produce positive terms. (Key C assigned to constructed-response question.)

32. D — Slope −0.18: each additional hour of weekly gaming is associated with a predicted decrease of 0.18 GPA points. Y-intercept 3.82: a student who games 0 hours per week is predicted to have a GPA of 3.82. Predicted GPA at 6 hours: $\hat{y}=-0.18(6)+3.82=-1.08+3.82=2.74$. Residual at (4, 3.10): predicted=−0.18(4)+3.82=3.10; residual=3.10−3.10=0. The data point lies exactly on the regression line. (Key D assigned to constructed-response question.)

33. B — Fencing constraint: 3w+L=320 (two widths plus the divider plus one length — three parallel width-segments and one length). Wait — the problem says one interior fence parallel to the width and one side along the river needs no fencing. Total fencing: 2w (two widths) + L (one length) + w (interior divider) = 3w+L=320. So L=320−3w. $A(w)=w(320-3w)=320w-3w^2$. Axis: w=−320/[2(−3)]=320/6≈53.3 feet. Maximum area: A(160/3)=... wait — w=320/6=53.3 ft. L=320−3(53.3)=320−160=160 ft. Area=53.3×160≈8,533 sq ft. (Key B assigned to constructed-response question.)

34. A — The data is perfectly linear (differences: 88,84,80,…,44 decrease by 4 each step). LinReg gives exactly $\hat{y}=-4x+92$ with r=−1.000. Slope −4: each additional hour of exercise predicts a 4 bpm decrease in resting pulse rate. Y-intercept 92: a person exercising 0 hours is predicted to have a pulse of 92 bpm. At 15 hours: $\hat{y}=-4(15)+92=-60+92=32$ bpm. Residual at (7,64): predicted=−4(7)+92=64; residual=64−64=0. The data point lies exactly on the regression line — the model fits perfectly at x=7. (Key A assigned to constructed-response question.)

35. C — System of inequalities: $125g+40d\geq60000$ (revenue), $g\leq400$ (capacity), $g\geq0$, $d\geq0$. Revenue boundary: $125g+40d=60000 \rightarrow$ g-intercept (480,0); d-intercept (0,1500). Boundary $g=400$ is vertical. Corner points: (0,1500): revenue=0+60000=$60,000; (400,0): revenue=50,000+0=$50,000 — fails revenue constraint (50,000<60,000); intersection of $g=400$ and revenue line: $125(400)+40d=60000 \rightarrow 50000+40d=60000 \rightarrow d=250$; point (400,250): revenue=50000+10000=$60,000. Additional corner: (0,1500) gives revenue exactly $60,000. For maximum revenue with no upper bound on d, revenue is maximized by maximizing d — but d has no stated upper constraint. At (400,250): R=$60,000. At (400,500): R=$50,000+$20,000=$70,000 — but this exceeds the minimum threshold with larger d. Since no maximum on d is given, the feasible region is unbounded above — revenue is technically unlimited. For the corner point analysis: (400,250) gives R=$60,000 and is the minimum revenue corner on the constraint boundary. For (350,200): 125(350)+40(200)=43,750+8,000=$51,750<$60,000 — fails revenue constraint. The point is NOT in the feasible region. Total revenue=$51,750, which falls short of the $60,000 target — the financial goal was not met. (Key C assigned to constructed-response question.)