Math

Module 1
(27 questions)

QUESTION 1

Choice B is correct. The height of each bar in the bar graph given represents the number of students that voted for the activity specified at the bottom of the bar. The bar for activity 3 has a height that is between 35 and 40. In other words, the number of students that chose activity 3 is between 35 students and 40 students. Of the given choices, 39 is the only value between 35 and 40. Therefore, 39 students chose activity 3.

Choice A is incorrect and may result from conceptual errors. *Choice C* is incorrect. This is the number of students that chose activity 5, not activity 3. *Choice D* is incorrect and may result from conceptual errors.

QUESTION 2

Choice A is correct. Let x represent the percentage of 300 that is 75. This can be written as $\frac{x}{100}(300)=75$, or $3x=75$. Dividing both sides of this equation by 3 yields $x=25$. Therefore, 25% of 300 is 75.

Choice B is incorrect. 50% of 300 is 150, not 75. *Choice C* is incorrect. 75% of 300 is 225, not 75. *Choice D* is incorrect. 225% of 300 is 675, not 75.

QUESTION 3

Choice B is correct. Multiplying the left- and right-hand sides of the given equation by 25 yields $x^2=900$. Taking the square root of the left- and right-hand sides of this equation yields $x=30$ or $x=-30$. Of these two solutions, only 30 is given as a choice.

Choice A is incorrect. This is a solution to the equation $x^2=36$. *Choice C* is incorrect and may result from conceptual or calculation errors. *Choice D* is incorrect and may result from conceptual or calculation errors.

QUESTION 4

Choice D is correct. The given phrase "8 times a number x" can be represented by the expression $8x$. The given phrase "3 more than" indicates an increase of 3 to a quantity. Therefore "3 more than 8 times a number x" can be represented by the expression $8x+3$. Since it's given that 3 more than 8 times a number x is equal to 83, it follows that $8x+3$ is equal to 83, or $8x+3=83$. Therefore, the equation that represents this situation is $8x+3=83$.

Choice A is incorrect. This equation represents 3 times the quantity 8 times a number x is equal to 83. *Choice B* is incorrect. This equation represents 8 times a number x is equal to 3 more than 83. *Choice C* is incorrect. This equation represents 8 more than 3 times a number x is equal to 83.

QUESTION 5

Choice A is correct. It's given that t represents the number of monthly deposits. In the given function $f(t)=100+25t$, the coefficient of t is 25. This means that for every increase in the value of t by 1, the value of $f(t)$ increases by 25. It follows that with each monthly deposit, the amount in Hana's bank account increased by \$25.

Choice B is incorrect. Before Hana made any monthly deposits, the amount in her bank account was \$100. *Choice C* is incorrect. After 1 monthly deposit, the amount in Hana's bank account was \$125. *Choice D* is incorrect and may result from conceptual errors.

QUESTION 6

The correct answer is 9. It's given that the customer spent \$27 to purchase oranges at \$3 per pound. Therefore, the number of pounds of oranges the customer purchased is $\$27\left(\frac{1\text{ pound}}{\$3}\right)$, or 9 pounds.

QUESTION 7

The correct answer is 10. It's given that the cost for the entire purchase was \$27 after a coupon was used for \$63 off the entire purchase. Adding the amount of the coupon to the purchase price yields $27+63=90$. Thus, the cost for the entire purchase before using the coupon was \$90. It's given that Nasir bought 9 storage bins. The original price for 1 storage bin can be found by dividing the total cost by 9. Therefore, the original price, in dollars, for 1 storage bin is $\frac{90}{9}$, or 10.

QUESTION 8

Choice A is correct. An equation that defines a linear function f can be written in the form $f(x)=mx+b$, where m and b are constants. It's given in the table that when $x=0$, $f(x)=29$. Substituting 0 for x and 29 for $f(x)$ in the equation $f(x)=mx+b$ yields $29=m(0)+b$, or $29=b$. Substituting 29 for b in the equation $f(x)=mx+b$ yields $f(x)=mx+29$. It's also given in the table that when $x=1$, $f(x)=32$. Substituting 1 for x and 32 for $f(x)$ in the equation

$f(x)=mx+29$ yields $32=m(1)+29$, or $32=m+29$. Subtracting 29 from both sides of this equation yields $3=m$. Substituting 3 for m in the equation $f(x)=mx+29$ yields $f(x)=3x+29$.

Choice B is incorrect and may result from conceptual or calculation errors. *Choice C* is incorrect and may result from conceptual or calculation errors. *Choice D* is incorrect and may result from conceptual or calculation errors.

QUESTION 9

Choice B is correct. In similar triangles, corresponding angles are congruent. It's given that right triangles PQR and STU are similar, where angle P corresponds to angle S. It follows that angle P is congruent to angle S. In the triangles shown, angle R and angle U are both marked as right angles, so angle R and angle U are corresponding angles. It follows that angle Q and angle T are corresponding angles, and thus, angle Q is congruent to angle T. It's given that the measure of angle Q is $18°$, so the measure of angle T is also $18°$. Angle U is a right angle, so the measure of angle U is $90°$. The sum of the measures of the interior angles of a triangle is $180°$. Thus, the sum of the measures of the interior angles of triangle STU is 180 degrees. Let s represent the measure, in degrees, of angle S. It follows that $s+18+90=180$, or $s+108=180$. Subtracting 108 from both sides of this equation yields $s=72$. Therefore, if the measure of angle Q is 18 degrees, then the measure of angle S is 72 degrees.

Choice A is incorrect. This is the measure of angle T. *Choice C* is incorrect and may result from conceptual or calculation errors. *Choice D* is incorrect. This is the sum of the measures of angle S and angle U.

QUESTION 10

Choice D is correct. The data points suggest that as the variable x increases, the variable y decreases, which implies that an appropriate linear model for the data has a negative slope. The data points also show that when x is close to 0, y is greater than 9. Therefore, the y-intercept of the graph of an appropriate linear model has a y-coordinate greater than 9. The graph of an equation of the form $y=a+bx$, where a and b are constants, has a y-intercept with a y-coordinate of a and has a slope of b. Of the given choices, only choice D represents a graph that has a negative slope, -0.9, and a y-intercept with a y-coordinate greater than 9, 9.4.

Choice A is incorrect. The graph of this equation has a positive slope, not a negative slope, and a y-intercept with a y-coordinate less than 1, not greater than 9. *Choice B* is incorrect. The graph of this equation has a y-intercept with a y-coordinate less than 1, not greater than 9. *Choice C* is incorrect. The graph of this equation has a positive slope, not a negative slope.

QUESTION 11

Choice A is correct. The number of birds can be found by calculating the value of b when $r=16$ in the given equation. Substituting 16 for r in the given equation

yields $2.5b+5(16)=80$, or $2.5b+80=80$. Subtracting 80 from both sides of this equation yields $2.5b=0$. Dividing both sides of this equation by 2.5 yields $b=0$. Therefore, if the business cares for 16 reptiles on a given day, it can care for 0 birds on this day.

Choice B is incorrect and may result from conceptual or calculation errors.
Choice C is incorrect and may result from conceptual or calculation errors.
Choice D is incorrect and may result from conceptual or calculation errors.

QUESTION 12

Choice C is correct. An equation of a line can be written in the form $y=mx+b$, where m is the slope of the line and $(0, b)$ is the y-intercept of the line. The line shown passes through the point $(0, -8)$, so $b=-8$. The line shown also passes through the point $(-8, 0)$. The slope, m, of a line passing through two points (x_1, y_1) and (x_2, y_2) can be calculated using the equation $m=\frac{y_2-y_1}{x_2-x_1}$. For the points $(0, -8)$ and $(-8, 0)$, this gives $m=\frac{(-8)-0}{0-(-8)}$, or $m=-1$. Substituting -8 for b and -1 for m in $y=mx+b$ yields $y=(-1)x+(-8)$, or $y=-x-8$. Therefore, an equation of the graph shown is $y=-x-8$.

Choice A is incorrect. This is an equation of a line with a slope of -2, not -1.
Choice B is incorrect. This is an equation of a line with a slope of 1, not -1.
Choice D is incorrect. This is an equation of a line with a slope of 2, not -1.

QUESTION 13

The correct answer is $\frac{1}{5}$. Since the number 5 can also be written as $\frac{5}{1}$, the given equation can also be written as $\frac{x}{8}=\frac{5}{1}$. This equation is equivalent to $\frac{8}{x}=\frac{1}{5}$. Therefore, the value of $\frac{8}{x}$ is $\frac{1}{5}$. Note that 1/5 and .2 are examples of ways to enter a correct answer.

Alternate approach: Multiplying both sides of the equation $\frac{x}{8}=5$ by 8 yields $x=40$. Substituting 40 for x into the expression $\frac{8}{x}$ yields $\frac{8}{40}$, or $\frac{1}{5}$.

QUESTION 14

The correct answer is 80. Subtracting the second equation in the given system from the first equation yields $(24x+y)-(6x+y)=48-72$, which is equivalent to $24x-6x+y-y=-24$, or $18x=-24$. Dividing each side of this equation by 3 yields $6x=-8$. Substituting -8 for $6x$ in the second equation yields $-8+y=72$. Adding 8 to both sides of this equation yields $y=80$.

Alternate approach: Multiplying each side of the second equation in the given system by 4 yields $24x+4y=288$. Subtracting the first equation in the given system from this equation yields $(24x+4y)-(24x+y)=288-48$, which is

equivalent to $24x-24x+4y-y=240$, or $3y=240$. Dividing each side of this equation by 3 yields $y=80$.

QUESTION 15

Choice D is correct. The equation that defines line t in the *xy*-plane can be written in slope-intercept form $y=mx+b$, where m is the slope of line t and $(0, b)$ is its *y*-intercept. It's given that line t has a slope of $-\frac{1}{3}$. Therefore, $m=-\frac{1}{3}$. Substituting $-\frac{1}{3}$ for m in the equation $y=mx+b$ yields $y=-\frac{1}{3}x+b$, or $y=-\frac{x}{3}+b$. It's also given that line t passes through the point $(9, 10)$. Substituting 9 for x and 10 for y in the equation $y=-\frac{x}{3}+b$ yields $10=-\frac{9}{3}+b$, or $10=-3+b$. Adding 3 to both sides of this equation yields $13=b$. Substituting 13 for b in the equation $y=-\frac{x}{3}+b$ yields $y=-\frac{x}{3}+13$.

Choice A is incorrect and may result from conceptual or calculation errors. *Choice B* is incorrect. This equation defines a line that has a slope of 9, not $-\frac{1}{3}$, and passes through the point $(0, 10)$, not $(9, 10)$. *Choice C* is incorrect. This equation defines a line that passes through the point $(0, 10)$, not $(9, 10)$.

QUESTION 16

Choice B is correct. It's given that the function $f(x)=206(1.034)^x$ models the value, in dollars, of a certain bank account by the end of each year from 1957 through 1972, where x is the number of years after 1957. It follows that $f(x)$ represents the estimated value, in dollars, of the bank account x years after 1957. Since the value of $f(5)$ is the value of $f(x)$ when $x=5$, it follows that "$f(5)$ is approximately equal to 243" means that $f(x)$ is approximately equal to 243 when $x=5$. In the given context, this means that the value of the bank account is estimated to be approximately 243 dollars 5 years after 1957. Therefore, the best interpretation of the statement "$f(5)$ is approximately equal to 243" in this context is the value of the bank account is estimated to be approximately 243 dollars in 1962.

Choice A is incorrect and may result from conceptual errors. *Choice C* is incorrect and may result from conceptual errors. *Choice D* is incorrect and may result from conceptual errors.

QUESTION 17

Choice B is correct. It's given that the ratio of the rectangular region's length to its width is 35 to 10. This can be written as a proportion: $\frac{\text{length}}{\text{width}}=\frac{35}{10}$, or $\frac{\ell}{w}=\frac{35}{10}$. This proportion can be rewritten as $10\ell=35w$, or $\ell=3.5w$. If the width of the rectangular region increases by 7, then the length will increase by some number x in order to maintain this ratio. The value of x can be found by replacing ℓ with $\ell+x$ and w with $w+7$ in the equation, which gives $\ell+x=3.5(w+7)$. This equation can be rewritten using the distributive property as $\ell+x=3.5w+24.5$.

Since $\ell = 3.5w$, the right-hand side of this equation can be rewritten by substituting ℓ for $3.5w$, which gives $\ell + x = \ell + 24.5$, or $x = 24.5$. Therefore, if the width of the rectangular region increases by 7 units, the length must increase by 24.5 units in order to maintain the given ratio.

Choice A is incorrect. If the width of the rectangular region increases, the length must also increase, not decrease. *Choice C* is incorrect. If the width of the rectangular region increases, the length must also increase, not decrease. *Choice D* is incorrect. Since the ratio of the length to the width of the rectangular region is 35 to 10, if the width of the rectangular region increases by 7 units, the length would have to increase by a proportional amount, which would have to be greater than 7 units.

QUESTION 18

Choice A is correct. Let x represent the side length, in inches, of square P. It follows that the perimeter of square P is $4x$ inches. It's given that square Q has a perimeter that is 176 inches greater than the perimeter of square P. Thus, the perimeter of square Q is 176 inches greater than $4x$ inches, or $4x + 176$ inches. Since the perimeter of a square is 4 times the side length of the square, each side length of Q is $\frac{4x+176}{4}$, or $x + 44$ inches. Since the area of a square is calculated by multiplying the length of two sides, the area of square Q is $(x + 44)(x + 44)$, or $(x + 44)^2$ square inches. It follows that function f is defined by $f(x) = (x + 44)^2$.

Choice B is incorrect. This function represents a square with side lengths $(x + 176)$ inches. *Choice C* is incorrect. This function represents a square with side lengths $(176x + 44)$ inches. *Choice D* is incorrect. This function represents a square with side lengths $(176x + 176)$ inches.

QUESTION 19

Choice C is correct. Dividing each side of the given equation by 2 yields $\frac{14x}{14y} = \frac{2\sqrt{w+19}}{2}$, or $\frac{x}{y} = \sqrt{w + 19}$. Because it's given that each of the variables is positive, squaring each side of this equation yields the equivalent equation $\left(\frac{x}{y}\right)^2 = w + 19$. Subtracting 19 from each side of this equation yields $\left(\frac{x}{y}\right)^2 - 19 = w$, or $w = \left(\frac{x}{y}\right)^2 - 19$.

Choice A is incorrect. This equation isn't equivalent to the given equation. *Choice B* is incorrect. This equation isn't equivalent to the given equation. *Choice D* is incorrect. This equation isn't equivalent to the given equation.

QUESTION 20

The correct answer is 100. It's given that point O is the center of a circle and the measure of arc RS on the circle is $100°$. It follows that points R and S lie on the circle. Therefore, $\overline{OR}$ and $\overline{OS}$ are radii of the circle. A central angle is an angle

formed by two radii of a circle, with its vertex at the center of the circle. Therefore, $\angle ROS$ is a central angle. Because the degree measure of an arc is equal to the measure of its associated central angle, it follows that the measure, in degrees, of $\angle ROS$ is 100.

QUESTION 21

The correct answer is $\frac{361}{8}$. The rational exponent property is $\sqrt[n]{y^m} = y^{\frac{m}{n}}$, where $y > 0$, m and n are integers, and $n > 0$. This property can be applied to rewrite the given expression $6\sqrt[5]{3^5 x^{45}} \cdot \sqrt[8]{2^8 x}$ as $6\left(3^{\frac{5}{5}}\right)\left(x^{\frac{45}{5}}\right)\left(2^{\frac{8}{8}}\right)\left(x^{\frac{1}{8}}\right)$, or $6(3)(x^9)(2)\left(x^{\frac{1}{8}}\right)$. This expression can be rewritten by multiplying the constants, which gives $36(x^9)\left(x^{\frac{1}{8}}\right)$. The multiplication exponent property is $y^n \cdot y^m = y^{n+m}$, where $y > 0$. This property can be applied to rewrite the expression $36(x^9)\left(x^{\frac{1}{8}}\right)$ as $36x^{9+\frac{1}{8}}$, or $36x^{\frac{73}{8}}$. Therefore, $6\sqrt[5]{3^5 x^{45}} \cdot \sqrt[8]{2^8 x} = 36x^{\frac{73}{8}}$. It's given that $6\sqrt[5]{3^5 x^{45}} \cdot \sqrt[8]{2^8 x}$ is equivalent to ax^b; therefore, $a = 36$ and $b = \frac{73}{8}$. It follows that $a + b = 36 + \frac{73}{8}$. Finding a common denominator on the right-hand side of this equation gives $a + b = \frac{288}{8} + \frac{73}{8}$, or $a + b = \frac{361}{8}$. Note that 361/8, 45.12, and 45.13 are examples of ways to enter a correct answer.

QUESTION 22

Choice B is correct. The area, A, of a triangle can be found using the formula $A = \frac{1}{2}bh$, where b is the length of the base of the triangle and h is the height of the triangle. It's given that the triangle is a right triangle. Therefore, its base and height can be represented by the two legs. It's also given that the triangle has sides of length $2\sqrt{2}$, $6\sqrt{2}$, and $\sqrt{80}$ units. Since $\sqrt{80}$ units is the greatest of these lengths, it's the length of the hypotenuse. Therefore, the two legs have lengths $2\sqrt{2}$ and $6\sqrt{2}$ units. Substituting these values for b and h in the formula $A = \frac{1}{2}bh$ gives $A = \frac{1}{2}\left(2\sqrt{2}\right)\left(6\sqrt{2}\right)$, which is equivalent to $A = 6\sqrt{4}$ square units, or $A = 12$ square units.

Choice A is incorrect. This expression represents the perimeter, rather than the area, of the triangle. *Choice C* is incorrect and may result from conceptual or calculation errors. *Choice D* is incorrect and may result from conceptual or calculation errors.

QUESTION 23

Choice D is correct. It's given that $4x^2 + bx - 45$ can be rewritten as $(hx + k)(x + j)$. The expression $(hx + k)(x + j)$ can be rewritten as $hx^2 + jhx + kx + kj$, or $hx^2 + (jh + k)x + kj$. Therefore, $hx^2 + (jh + k)x + kj$ is equivalent to $4x^2 + bx - 45$. It follows that $kj = -45$. Dividing each side of this equation by k yields $j = \frac{-45}{k}$. Since j is an integer, $-\frac{45}{k}$ must be an integer. Therefore, $\frac{45}{k}$ must also be an integer.

Choice A is incorrect and may result from conceptual or calculation errors.
Choice B is incorrect and may result from conceptual or calculation errors.
Choice C is incorrect and may result from conceptual or calculation errors.

QUESTION 24

Choice C is correct. It's given that the graphs of the equations in the given system intersect at exactly one point, (x, y), in the *xy*-plane. Therefore, (x, y) is the only solution to the given system of equations. The given system of equations can be solved by subtracting the second equation, $y = 3x + a$, from the first equation, $y = 2x^2 - 21x + 64$. This yields $y - y = (2x^2 - 21x + 64) - (3x + a)$, or $0 = 2x^2 - 24x + 64 - a$. Since the given system has only one solution, this equation has only one solution. A quadratic equation in the form $rx^2 + sx + t = 0$, where r, s, and t are constants, has one solution if and only if the discriminant, $s^2 - 4rt$, is equal to zero. Substituting 2 for r, -24 for s, and $-a + 64$ for t in the expression $s^2 - 4rt$ yields $(-24)^2 - (4)(2)(64 - a)$. Setting this expression equal to zero yields $(-24)^2 - (4)(2)(64 - a) = 0$, or $8a + 64 = 0$. Subtracting 64 from both sides of this equation yields $8a = -64$. Dividing both sides of this equation by 8 yields $a = -8$. Substituting -8 for a in the equation $0 = 2x^2 - 24x + 64 - a$ yields $0 = 2x^2 - 24x + 64 + 8$, or $0 = 2x^2 - 24x + 72$. Factoring 2 from the right-hand side of this equation yields $0 = 2(x^2 - 12x + 36)$. Dividing both sides of this equation by 2 yields $0 = x^2 - 12x + 36$, which is equivalent to $0 = (x - 6)(x - 6)$, or $0 = (x - 6)^2$. Taking the square root of both sides of this equation yields $0 = x - 6$. Adding 6 to both sides of this equation yields $x = 6$.

Choice A is incorrect. This is the value of a, not x. *Choice B* is incorrect and may result from conceptual or calculation errors. *Choice D* is incorrect and may result from conceptual or calculation errors.

QUESTION 25

Choice C is correct. Since the triangle is an isosceles right triangle, the two sides that form the right angle must be the same length. Let x be the length, in inches, of each of those sides. The Pythagorean theorem states that in a right triangle, $a^2 + b^2 = c^2$, where c is the length of the hypotenuse and a and b are the lengths of the other two sides. Substituting x for a, x for b, and 58 for c in this equation yields $x^2 + x^2 = 58^2$, or $2x^2 = 58^2$. Dividing each side of this equation by 2 yields $x^2 = \frac{58^2}{2}$, or $x^2 = \frac{2 \cdot 58^2}{4}$. Taking the square root of each side of this equation yields two solutions: $x = \frac{58\sqrt{2}}{2}$ and $x = -\frac{58\sqrt{2}}{2}$. The value of x must be positive because it represents a side length. Therefore, $x = \frac{58\sqrt{2}}{2}$, or $x = 29\sqrt{2}$. The perimeter, in inches, of the triangle is $58 + x + x$, or $58 + 2x$. Substituting $29\sqrt{2}$ for x in this expression gives a perimeter, in inches, of $58 + 2(29\sqrt{2})$, or $58 + 58\sqrt{2}$.

Choice A is incorrect. This is the length, in inches, of each of the congruent sides of the triangle, not the perimeter, in inches, of the triangle. *Choice B* is incorrect. This is the sum of the lengths, in inches, of the congruent sides of the triangle, not

the perimeter, in inches, of the triangle. *Choice D* is incorrect and may result from conceptual or calculation errors.

QUESTION 26

Choice D is correct. The equation of a parabola in the *xy*-plane can be written in the form $y=a(x-h)^2+k$, where a is a constant and (h, k) is the vertex of the parabola. If a is positive, the parabola will open upward, and if a is negative, the parabola will open downward. It's given that the parabola has vertex $(9, -14)$. Substituting 9 for h and -14 for k in the equation $y=a(x-h)^2+k$ gives $y=a(x-9)^2-14$, which can be rewritten as $y=a(x-9)(x-9)-14$, or $y=a(x^2-18x+81)-14$. Distributing the factor of a on the right-hand side of this equation yields $y=ax^2-18ax+81a-14$. Therefore, the equation of the parabola, $y=ax^2-18ax+81a-14$, can be written in the form $y=ax^2+bx+c$, where $a=a$, $b=-18a$, and $c=81a-14$. Substituting $-18a$ for b and $81a-14$ for c in the expression $a+b+c$ yields $(a)+(-18a)+(81a-14)$, or $64a-14$. Since the vertex of the parabola, $(9, -14)$, is below the *x*-axis, and it's given that the parabola intersects the *x*-axis at two points, the parabola must open upward. Therefore, the constant a must have a positive value. Setting the expression $64a-14$ equal to the value in choice D yields $64a-14=-12$. Adding 14 to both sides of this equation yields $64a=2$. Dividing both sides of this equation by 64 yields $a=\frac{2}{64}$, which is a positive value. Therefore, if the equation of the parabola is written in the form $y=ax^2+bx+c$, where a, b, and c are constants, the value of $a+b+c$ could be -12.

Choice A is incorrect. If the equation of a parabola with a vertex at $(9, -14)$ is written in the form $y=ax^2+bx+c$, where a, b, and c are constants and $a+b+c=-23$, then the value of a will be negative, which means the parabola will open downward, not upward, and will intersect the *x*-axis at zero points, not two points. *Choice B* is incorrect. If the equation of a parabola with a vertex at $(9, -14)$ is written in the form $y=ax^2+bx+c$, where a, b, and c are constants and $a+b+c=-19$, then the value of a will be negative, which means the parabola will open downward, not upward, and will intersect the *x*-axis at zero points, not two points. *Choice C* is incorrect. If the equation of a parabola with a vertex at $(9, -14)$ is written in the form $y=ax^2+bx+c$, where a, b, and c are constants and $a+b+c=-14$, then the value of a will be 0, which is inconsistent with the equation of a parabola.

QUESTION 27

The correct answer is 5. It's given that $f(x)=-a^x+b$. Substituting $-a^x+b$ for $f(x)$ in the equation $y=f(x)-15$ yields $y=-a^x+b-15$. It's given that the y-intercept of the graph of $y=f(x)-15$ is $\left(0, -\frac{99}{7}\right)$. Substituting 0 for x and $-\frac{99}{7}$ for y in the equation $y=-a^x+b-15$ yields $-\frac{99}{7}=-a^0+b-15$, which is equivalent to $-\frac{99}{7}=-1+b-15$, or $-\frac{99}{7}=b-16$. Adding 16 to both sides of this equation yields $\frac{13}{7}=b$. It's given that the product of a and b is $\frac{65}{7}$, or $ab=\frac{65}{7}$. Substituting $\frac{13}{7}$ for b in this equation yields $(a)\left(\frac{13}{7}\right)=\frac{65}{7}$. Dividing both sides of this equation by $\frac{13}{7}$ yields $a=5$.