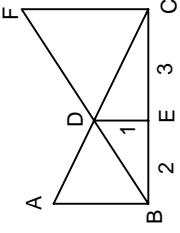
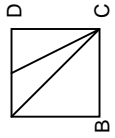
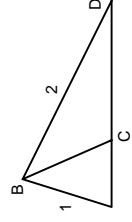
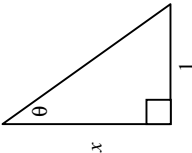
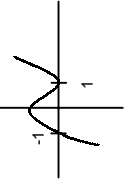
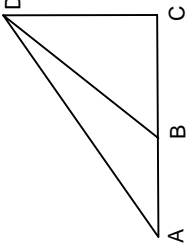
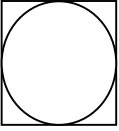
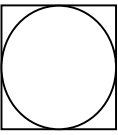
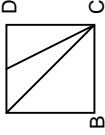
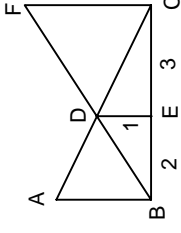
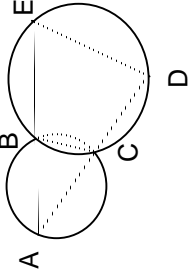


<p>A1</p> <p>Find the radius of the circle with equation $x^2 + y^2 - 8x - 2y - 8 = 0$.</p>	<p>A2</p> <p>An isosceles triangle has a 120° angle and two sides of length $\sqrt{3}$. How long is the third side?</p>	<p>A3</p> <p>Solve for x:</p> $\sqrt{x + \sqrt{x + 2}} = 2.$	<p>A4</p> <p>$\angle ABC, \angle DEC$ and $\angle FCB$ are right angles. $DE = 1, BE = 2, CE = 3.$ $\frac{1}{AB} + \frac{1}{CF} = ?$</p> 	<p>A5</p> <p>Solve for x: $\log_4 [\log_3 (\log_2 x)] = 0$ Simplify your answer.</p>
<p>A6</p> <p>$\cos(\theta + \pi) = \sin \theta$ $0 \leq \theta \leq \pi.$ Find θ in radians.</p>	<p>A7</p> <p>The tangent to $x^2 + y^2 = 2$ at $(1,1)$ has y intercept $(0,b)$. $b = ?$</p>	<p>A8</p> <p>The roots of $x^2 + 8x + m$ differ by 2. $m = ?$</p>	<p>A9</p> <p>Numbers $a, b,$ and c have average 5. What is the average of the numbers $a, b, c,$ and 29?</p>	<p>A10</p> <p>How many times do $xy = 1$ and $x^2 + y^2 = 4$ intersect?</p>
<p>A11</p> <p>How many ways are there to arrange the letters in the word BOOBOO?</p>	<p>A12</p>  <p>E is the midpoint of A and D. Evaluate $\frac{\text{area of square } ABCD}{\text{area of triangle } ACE}.$</p>	<p>A13</p> <p>What is the largest value of $f(x) = \frac{1}{x^2 + 8x + 18}$ for all real numbers x?</p>	<p>A14</p> <p>How many solutions does $\cot x = \cos x$ have for $0 \leq x \leq 2\pi$?</p>	<p>A15</p> <p>Evaluate $(1 + 3 + 5 + \dots + 19)^{1/2}$</p>
<p>A16</p> <p>Solve for x: $\log_3(x^2 - 1) = 2 + \log_3(x + 1).$</p>	<p>A17</p> <p>For the function $f(x) = 1 - x^{-1}$, write $f(f(x))$ as a single fraction in lowest terms.</p>	<p>A18</p> <p>$\angle ABC = 45^\circ = \angle CBD.$ $AB = 1$ and $BD = 2.$ Simplify $\frac{\text{area } \triangle BCD}{\text{area } \triangle ABC}$</p> 	<p>A19</p> <p>The line through $(0,0)$ and $(3,1)$ is perpendicular to the line through $(0,0)$ and $(1,k)$. What is k?</p>	<p>A20</p> <p>What is the probability that 5 flips of a fair coin give exactly one head?</p>

<p>A21</p>  <p>$\sin \theta = 3/5$. $x = ?$</p>	<p>A22</p> <p>$y = x^3 + bx^2 + cx + d$ has the graph shown $d = ?$</p> 	<p>A23</p> <p>Simplify</p> <p>$2 \log_8 27$</p>	<p>A24</p> <p>$r^2 - 2002r + 1 = 0$</p> <p>$r + \frac{1}{r} = ?$</p>	<p>A25</p> <p>$\angle ADB = 15^\circ$, $\angle BAD = 45^\circ$, and $\angle BCD = 90^\circ$. $BC = 2$. Find the area of triangle ACD.</p> 
<p>A26</p> <p><i>Simplify $(1+i)^8$ for $i^2 = -1$.</i></p>	<p>A27</p> <p>What is the coefficient of x^2 in the expansion of $\left(x + \frac{2}{x}\right)^4$?</p>	<p>A28</p> <p>$\log_a 7 = 3$ and $\log_b 7 = 6$. Simplify b^2/a.</p>	<p>A29</p> <p>Find the sum of the x-coordinates of the two points of intersection of $xy = 2$ and $x + y = 5$.</p>	<p>A30</p> <p>$f(x-1) = 3x^{98} + 50x^5 - 2$. $f(0) = ?$</p>
<p>A31</p> <p>What is the distance between the endpoints of an arc of length π on a circle of radius 2?</p>	<p>A32</p> <p>Solve for x: $4^x + 2^{2x} + 16^{x/2} + 64^{x/3} = 256$.</p>	<p>A33</p> <p>Which is bigger? $\sin(402^\circ)$ or $\cos(402^\circ)$</p>	<p>A34</p> <p>If $x + y = 22$, what is the largest possible value of xy?</p>	<p>A35</p> <p>Solve for b: $\log_b \sqrt{b^2 - 20} = \frac{1}{2}$</p>
<p>A36</p> <p>What is the area of the circle inscribed in a square of perimeter 8?</p> 	<p>A37</p> <p>How many people have a total of 2002 more fingers than heads and feet?</p>	<p>A38</p> <p>Simplify</p> <p>$\frac{\sqrt[3]{x\sqrt{x}}}{\sqrt{x}}$</p>	<p>A39</p> <p>Simplify $\cos(\pi \cos(2002\pi))$.</p>	<p>A40</p> <p>What is the rightmost digit in 2002^{2002} ?</p>

<p>B1</p> <p>What is the rightmost digit in 2002^{2002} ?</p>	<p>B2</p> <p>What is the area of the circle inscribed in a square of perimeter 8?</p> 	<p>B3</p> <p>Write $\left(1 - \frac{1}{2^2}\right)\left(1 - \frac{1}{3^2}\right)\left(1 - \frac{1}{4^2}\right)\left(1 - \frac{1}{5^2}\right)$ as a fraction in lowest terms.</p>	<p>B4</p> <p>Find all roots of $x^3 + 3x^2 - 4 = 0$</p>	<p>B5</p> <p>ABCD is a rectangle. $AB = 5$ and $AD = 3$.</p> <p>Simplify $\frac{\text{area } \triangle ABE}{\text{area } \triangle ADE}$</p>
<p>B6</p> <p>Simplify $\frac{\sqrt[3]{x\sqrt{x}}}{\sqrt{x}}$</p>	<p>B7</p>  <p>E is the midpoint of A and D. Evaluate $\frac{\text{area of square } ABCD}{\text{area of triangle } ACE}$.</p>	<p>B8</p> <p>$kx^2 + kx + 1$ has exactly one real root. What is k?</p>	<p>B9</p> <p>Numbers a, b, and c have average 5. What is the average of the numbers a, b, c, and 29?</p>	<p>B10</p> <p>$\angle ABC$, $\angle DEC$ and $\angle FCB$ are right angles. $DE = 1$, $BE = 2$, $CE = 3$.</p> <p>$\frac{1}{AB} + \frac{1}{CF} = ?$</p> 
<p>B11</p> <p>Simplify $(1 + i)^8$ for $i^2 = -1$.</p>	<p>B12</p> <p>Find the sum of the x-coordinates of the two points of intersection of $xy = 2$ and $x + y = 5$.</p>	<p>B13</p> <p>$x - \sqrt{2}$ is a factor of $x^8 + 2kx^4 - 2kx^2 - 12$. Find k.</p>	<p>B14</p> <p>What is the distance between the endpoints of an arc of length π on a circle of radius 2?</p>	<p>B15</p> <p>Solve for x: $2 \cdot 16^{-2/3} = 32^{x/3}$</p>
<p>B16</p> <p>For what integer n are \sqrt{n} and $\sqrt{n+13}$ both integers?</p>	<p>B17</p> <p>Simplify $\left(\frac{x^3 + x^2 + x + 1}{x^3 - x^2 + x - 1}\right)\left(\frac{x^3 - x^2 - x + 1}{x^3 + x^2 - x - 1}\right)$</p>	<p>B18</p> <p>$r^2 - 2002r + 1 = 0$</p> <p>$r + \frac{1}{r} = ?$</p>	<p>B19</p> <p>Find the radius of the circle with equation $x^2 + y^2 - 8x - 2y - 8 = 0$.</p>	<p>B20</p> <p>What is the probability that 5 flips of a fair coin give exactly one head?</p>

<p>B21 Find the largest value of x such that: $x^2 - 4000x + 4,000,000 = 4$</p>	<p>B22 What is the largest common factor of 28^3 and 18^5?</p>	<p>B23 $\angle BAC = 50^\circ$ $\angle ABC = 60^\circ$ $\angle BED = ?$</p> 	<p>B24 Simplify k^2 for $k = \sqrt{2 - \sqrt{3}} + \sqrt{2 + \sqrt{3}}$.</p>	<p>B25 How many 3-digit integers are multiples of 3?</p>
<p>B26 If $x + y = 22$, what is the largest possible value of xy?</p>	<p>B27 The roots of $x^2 + 8x + m$ differ by 2. $m = ?$</p>	<p>B28 Solve for x: $4^x + 2^{2x} + 16^{x/2} + 64^{x/3} = 256$.</p>	<p>B29 Jane eats a pie in 20 minutes alone and in 15 minutes with Jack. How many minutes does it take Jack to eat a pie alone?</p>	<p>B30 For what digit q is the integer 25q,342 divisible by 9?</p>
<p>B31 Evaluate $(1 + 3 + 5 + \dots + 19)^{1/2}$</p>	<p>B32 How many times do the graphs of $x = y^2$ and $y = 7 - x^2$ intersect?</p>	<p>B33 Evaluate $i + i^2 + i^3 + \dots + i^{2002}$ for $i^2 = -1$.</p>	<p>B34 What is the coefficient of x^2 in the expansion of $\left(x + \frac{2}{x}\right)^4$</p>	<p>B35 How many ways are there to arrange the letters in the word BOOBOO?</p>
<p>B36 How many people have a total of 2002 more fingers than heads and feet?</p>	<p>B37 The line through $(0,0)$ and $(3,1)$ is perpendicular to the line through $(0,0)$ and $(1,k)$. What is k?</p>	<p>B38 Solve for x: $[(x^{-1} + 1)^{-1} - I]^{-1} = 5$.</p>	<p>B39 How many positive integers are factors of 2^{2002} (including 1 and 2^{2002})?</p>	<p>B40 What is the rightmost digit in 2002^{2002}?</p>