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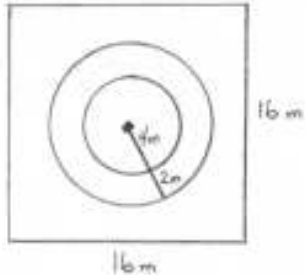
Using separate sheets of paper, give a clear, concise solution to each problem. Include all relevant drawings as well as necessary equations or expressions. This exam has 50 points possible.

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1. For  $h(x) = 3x^4 - 8x^2 + 5x - 7$ , find  $h(4)$   $\diamond$  653
2. Evaluate:  $(7x^3 + 10x + 5) - (x^3 - 4x + 6)$   $\diamond$   $6x^3 + 14x - 1$
3. Evaluate:  $(2x + 3)^2$   $\diamond$   $4x^2 + 12x + 9$
4. How much money will you have after investing \$5200 for 10 years at  $3\frac{1}{2}\%$  interest when compounded monthly?  $\diamond$  \$7,375.39
5. You are considering two job offers. The first offers a salary of \$23,000 with a \$650 annual raise. The other offer is a salary of \$19,500 with a 4% annual raise. Which job offers the most money after one year?  $\diamond$  take job #1
6. Simplify:  $4^5 \cdot 4^0 \cdot 4^{-5}$   $\diamond$  1
7. Simplify:  $(\frac{y}{x})^{-3}$   $\diamond$   $\frac{x^3}{y^3}$
8. Simplify:  $\frac{x^3 - 2x^2 - 9x + 18}{x - 3}$   $\diamond$   $x^2 - 6x$
9. Simplify:  $-2^4$   $\diamond$  -16
10. Simplify:  $(-2)^4$   $\diamond$  +16
11. Simplify:  $\frac{5x^5y^9}{25x^5y^{-2}}$   $\diamond$   $\frac{y^{11}}{5}$
12. Simplify:  $(\sqrt[11]{22})^5$   $\diamond$  4.07
13. Simplify:  $\log_9 81$   $\diamond$  2
14. Simplify:  $\log_9(\frac{1}{9})$   $\diamond$  -1
15. Simplify:  $\ln e^{-7}$   $\diamond$  -7
16. Simplify:  $\log 100,000,000,000$   $\diamond$  11
17. Solve:  $x^5 + x^4 - 9x^3 - 5x^2 = 36$   $\diamond$   $x = -3, -2, 3$
18. Solve:  $2x^3 - 5x^2 = 14x - 8$   $\diamond$   $x = -2, .5, 4$
19. Solve:  $3x^4 = 486$   $\diamond$  3.57
20. Solve:  $8^{3x} = 16^{x+1}$   $\diamond$  0.8
21. Solve:  $8^{2x-3} + 2 = 23$   $\diamond$  2.23
22. Find the length of the side opposite AND the length of the side adjacent to a 23 degree angle in a right triangle if the hypotenuse is 10 m.  $\diamond$  opp:3.9 adj:9.2
23. Classify a triangle with sides 2m, 10m, 12m as acute, obtuse or right.  $\diamond$  obtuse
24. Find the length of the side opposite AND the length of the hypotenuse in a 45-45-90 triangle if the length of the adjacent side is 5 m.  $\diamond$  opp:5 hyp: $5\sqrt{2}$

25. Find the area of an equilateral triangle if the length of each side is 5 m.  $\diamond 10.8$   
 26. Find the area of a 30-60-90 triangle if the hypotenuse is 12 m.  $\diamond 18\sqrt{3}$   
 27. Find the area of a regular hexagon with a radius of 4 m.  $\diamond 41.6$   
 28. Find the area remaining if the area of a circle with radius of 8 m has the area of a regular hexagon inside it removed.  $\diamond 34.8$   
 29. find the length of arc TR in a circle having radius 8 m and a central angle of 75 degrees.  $\diamond 10.5$   
 30. find the area of sector TJR in a circle having radius 8 m and a central angle of 75 degrees.  $\diamond 41.9$   
 31.

21. A dart is tossed and hits the dart board shown below. If the dart is equally likely to land on any point on the dart board, find the probability that the dart lands in the center circle.



$\diamond 19.6\%$

Convert to radian measure.

32.  $135 \diamond \frac{3\pi}{4}$

33.  $60 \diamond \frac{\pi}{3}$

Convert to degree measure.

34.  $\frac{\pi}{9} \diamond 20^\circ$

35.  $\frac{2\pi}{3} \diamond 120^\circ$

36. If the  $\sin \theta = \frac{5}{13}$ , find the remaining trigonometric ratios.

$\diamond \tan \theta = \frac{5}{12}, \cos \theta = \frac{12}{13}$