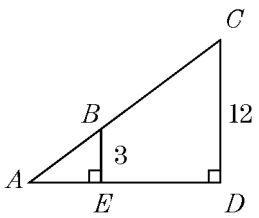
Math 8 Enriched

Final Exam Review

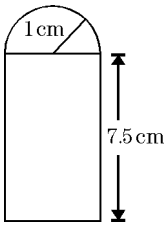
Name _____ Date _____

Factor.

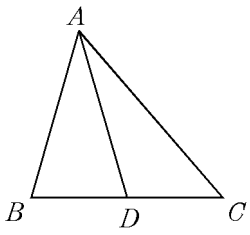
1. $5m^2 + 6m + 1$
2. $11k^2 - 12k + 1$
3. $5y^2 - 4y - 1$
4. $13w^2 + 12w - 1$
5. $12x^2 + 4x - 1$
6. $6a^2 - a - 1$
7. $10m^2 - 7m + 1$
8. $8c^2 + 6c + 1$
9. $3x^2 - 10x + 7$
10. $2n^2 + 7n + 5$
11. In a county election, the incumbent received 5 votes for every 3 received by the challenger. If the incumbent received 6210 votes, how many did the challenger get?
12. At a rate of \$2.75 per square yard, how much will 9 square yards of carpet cost?
13. If it takes 8 meters of fabric to make 5 pairs of curtains, how many meters are required to make 22 pairs?
14. The angles in a quadrilateral are in a ratio of $2 : 2 : 3 : 3$. Find the measure of each angle.
15. The length and width of a rectangle are in a $7 : 2$ ratio. Find the width if the perimeter is 72.
16. The width of a rectangular playground is 4 meters more than one-third of the length. What are the dimensions of the playground if the area is 3060 sq m ?
17. The height of a triangle is 3 cm more than twice the base. The area is $45\,\text{cm}^2$. Find the base and height.
18. Find the number of square units in the area of trapezoid $BCDE$ if the length of $\overline{AC}$ is 20 units, the length of $\overline{DC}$ is 12, and the length of $\overline{BE}$ is 3.



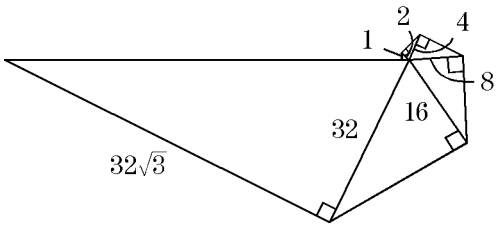
19. The figure is the union of a semicircle of radius 1 and a rectangle. Find the number of square centimeters in the area of this figure. Give your answer as a decimal to the nearest tenth of a square centimeter.



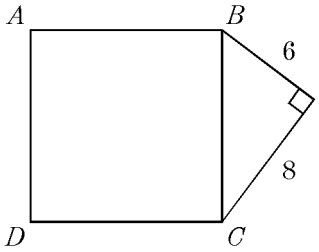

20. If $BD = DC$ and the area of the triangle $ABD$ is 8 square units, find the area of triangle $ABC$.



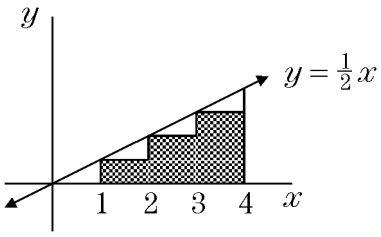

21. Find the perimeter of the polygon shown.




22. What is the number of square units in the area of square $ABCD$?

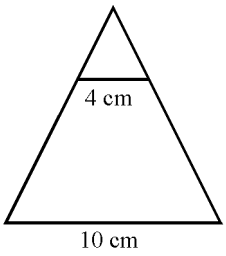


23. Given the graph of $y = \frac{1}{2}x$ as pictured, vertical line segments are drawn perpendicular to the $x$-axis and rectangles are formed, as shown. How many square units are in the area of the shaded region?




24. The area of a square with side $x$ cm is $5\,\text{cm}^2$. What is the number of square centimeters in the area of a square with side $2x$ cm?

25. In the diagram, the two triangles shown have parallel bases. What is the ratio of the area of the smaller triangle to the area of the larger triangle? Express your answer as a common fraction.




26. How many natural numbers between 200 and 300 are divisible by 7?

27. For what digit(s) $x$ will the 4-digit number $\underline{5xx8}$ be divisible by 9?

28. If the seven-digit number $\underline{8,54n,526}$ is divisible by 11, what is $n$?

29. Suppose $a$, $b$, and $c$ are distinct digits for which the number $\underline{708,a6b,8c9}$ is a multiple of 99. Find $a+b+c$.

30. How many factors does $2^3 \cdot 3^6 \cdot 5$ have?

31. Find the number of positive integral divisors of 67257.

32. What is the sum of the prime factors of $2^{16} - 1$?

Math 8 Enriched Final Exam Review Mr. Young 2017-06-12

**Answer List**

1. $(5m+1)(m+1)$
2. $(11k-1)(k-1)$
3. $(5y+1)(y-1)$
4. $(13w-1)(w+1)$
5. $(6x-1)(2x+1)$
6. $(3a+1)(2a-1)$
7. $(5m-1)(2m-1)$
8. $(4c+1)(2c+1)$
9. $(3x-7)(x-1)$
10. $(2n+5)(n+1)$
11. 3726
12. \$24.75
13. 35.2
14. $72, 72, 108, 108$
15. 8
16. $34 \times 90\,\text{m}$
17. $6, 13$
18. 90 ($\text{units}^2$)
19. 16.6 ($\text{cm}^2$)
20. 16 ($\text{units}^2$)
21. $63\sqrt{3}+63$ (units)
22. 100 ($\text{units}^2$)
23. 3 (square units)
24. 20 (square centimeters)
25. $\frac{4}{25}$
26. 14 (numbers)
27. 7
28. 5
29. 16
30. 56 (factors)
31. 16 (divisors)
32. 282

**Catalog List**

1. ALG IH 1
2. ALG IH 2
3. ALG IH 3
4. ALG IH 4
5. ALG IH 5
6. ALG IH 6
7. ALG IH 7
8. ALG IH 8
9. ALG IH 9
10. ALG IH 10
11. ALG KE 11
12. ALG KE 13
13. ALG KE 27
14. ALG KD 28
15. ALG KD 20
16. ALG JF 68
17. ALG JF 75
18. MCC CA 86
19. MCC CA 87
20. MCC CA 92
21. MCC CA 120
22. MCC CA 188
23. MCC CA 207
24. MCC CA 266
25. MCC CA 331
26. MCC DD 14
27. MCC DD 18
28. MCC DD 28
29. MCC DD 41
30. MCC DE 22
31. MCC DE 28
32. MCC DE 42