

**GEE MATH 21
FINAL EXAM STUDY GUIDE**

Name: _____
Date: _____

DIRECTIONS: Answer each question as indicated. You must SHOW WORK to receive FULL CREDIT.

Solve the proportion.

1. $\frac{x-8}{5} = \frac{2}{4}$

2. $\frac{w+14}{4w+6} = \frac{3}{4}$

Write an equation and solve. Round the final answer to the nearest tenth, if necessary.

3. 16 is what percent of 34?

4. 68 is 78% of what number?

5. Use the formula for simple interest, $I = prt$.
Find p if $I = \$313.42$, $r = 2.5\%$, and $t = 3$ yr.

6. Two cars started from the same point. One traveled north at 45 mi/h and the other traveled south at 65 mi/h. How far apart were the cars after 3 hours?

7. For $A = \begin{bmatrix} 10 & -6 \\ 12 & 0 \end{bmatrix}$ and $B = \begin{bmatrix} -6 & 2 \\ -5 & 3 \end{bmatrix}$, find $A + B$.

Write an algebraic expression for the phrase.

8. 4 times the sum of q and p

Simplify the expression.

9. $3^3 \cdot 32 + 12 \div 4$

10. $(-5 - c)(-1)$

11. $1.7m^2 + 6.5n - 4n + 2.5m^2 - n$

12. $(k^2)^4$

13. $\frac{x^{14}}{x^7}$

14. $-\sqrt{5} - 3\sqrt{36} + 6\sqrt{5}$

15. Evaluate the formula $V = \frac{Bh}{3}$ for $B = 9$ in.² and $h = 32$ in.

16. Evaluate $b - 2a - c$ for $a = -7$, $b = 3$, and $c = -7$.

Solve the equation.

17. $-6 = \frac{x}{8} + 4$

18. $\frac{3}{7}x + 5 = 8$

19. $3(y + 6) = 30$

20. $3p - 1 = 5(p - 1) - 2(7 - 2p)$

21. Solve: $5x - 5 = 3x - 9$

22. Sirius wrote a check for \$67. He subtracted that amount from his account balance and found that the balance was \$329 after writing the check. Write and solve an equation to find his balance before writing the check.

23. A customer went to a garden shop and bought some potting soil for \$17.50 and 4 shrubs. The total bill was \$53.50. Write and solve an equation to find the price of each shrub.

24. Find the value of each variable.

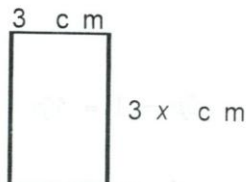
$$\begin{bmatrix} 2\frac{1}{2} - w & 5\frac{3}{4} \\ \frac{1}{3}y + \frac{2}{3} & z - 1 \end{bmatrix} = \begin{bmatrix} \frac{1}{2} + w & x - \frac{1}{4} \\ y - \frac{1}{3} & \frac{1}{2}z + 2 \end{bmatrix}$$

25. The length of a rectangle is 5 centimeters less than twice its width. The perimeter of the rectangle is 26 cm. What are the dimensions of the rectangle?

Solve the equation for the given variable.

26. $V = lwh$; w

27. The perimeter of the rectangle is 24 cm. Find the value of x .



Find the real-number root.

28. $\sqrt{1.69}$

29. The formula for the volume of a sphere is $V = \frac{4}{3}\pi r^3$.

Find the radius, to the nearest hundredth, of a sphere with a volume of 15 in.³.

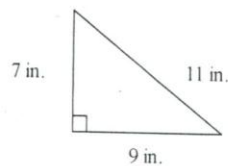
Multiply and simplify if possible.

30. $\sqrt{6} \cdot \sqrt{2}$

31. A garden has width $\sqrt{13}$ and length $7\sqrt{13}$. What is the perimeter of the garden in simplest radical form?

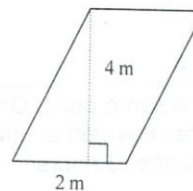
Find the area of the figure.

32.



Drawing not to scale

33.



Drawing not to scale

Find the surface area of the figure. Round final answers to the nearest tenth if necessary.

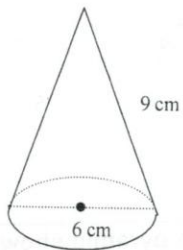
34.



Drawing not to scale

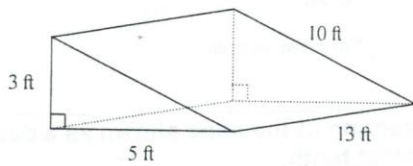
Find the surface area of the figure. Round final answers to the nearest tenth if necessary.

35.



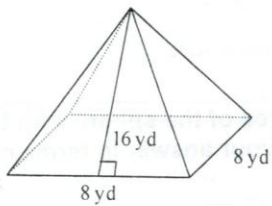
Drawing not to scale

36.



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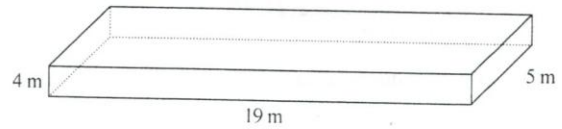
37.



Drawing not to scale

Use formulas to find the lateral area and surface area of the given prism. Show your answer to the nearest whole number.

38.

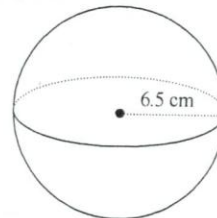


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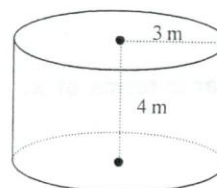
39. The radius of the base of a cylinder is 28 cm and its height is 48 cm. Find the surface area of the cylinder in terms of π .

Find the volume of the solid. Round to the nearest tenth if necessary.

40.



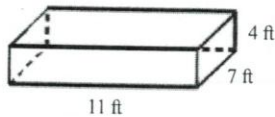
41.



Drawing not to scale

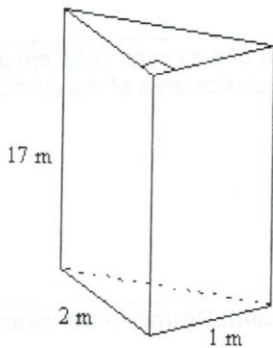
Find the volume of the given prism. Round to the nearest tenth if necessary.

42.



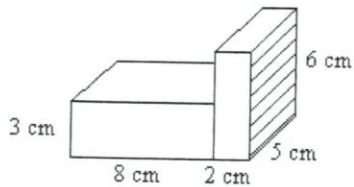
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43.



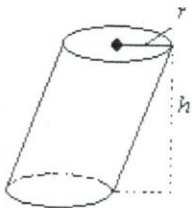
44. Concrete can be purchased by the cubic yard. How much will it cost to pour a slab 17 feet by 17 feet by 2 inches for a patio if the concrete costs \$40.00 per cubic yard?

45. Find the volume of the composite space figure to the nearest whole number.



Find the volume of the cylinder in terms of π .

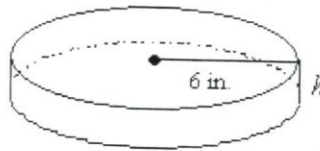
46.



$h = 6$ and $r = 3$

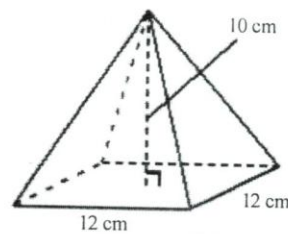
47. Find the height of the cylinder.

$$V = 271.4 \text{ in.}^3$$



Find the volume of the square pyramid shown. Round to the nearest tenth as necessary.

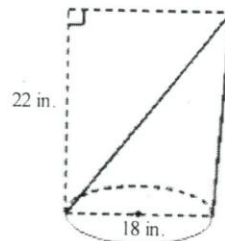
48.



Not drawn to scale

Find the volume of the cone shown as a decimal rounded to the nearest tenth.

49.



Not drawn to scale

Find the surface area of the sphere with the given dimension. Leave your answer in terms of π .

50. diameter of 16 cm

GEE MATH 21
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Answer Section

Name: _____

1. $\frac{21}{2}$
2. $\frac{4}{19}$
3. $16 = n \cdot 34$; 47.1%
4. $68 = 0.78 \cdot x$; 87.2
5. \$4,178.93
6. 330 mi
7. $\begin{bmatrix} 4 & -4 \\ 7 & 3 \end{bmatrix}$
8. $4(q + p)$
9. 867
10. $5 + c$
11. $4.2m^2 + 1.5n$
12. k^8
13. x^7
14. $5\sqrt{5} - 18$
15. 96 in.^3
16. 24
17. -80
18. 7
19. 4
20. 3
21. -2
22. $x - 67 = 329$; $x = \$396$
23. $4p + \$17.50 = \53.50 ; $p = \$9.00$
24. $w = 1$; $x = 6$; $y = \frac{3}{2}$; $z = 6$
25. length = 7 cm; width = 6 cm
26. $w = \frac{V}{lh}$
27. 3
28. 1.3
29. 1.53 in.
30. $2\sqrt{3}$
31. $16\sqrt{13}$ units
32. 31.5 in.^2
33. 8 m^2
34. 125.6 cm^2
35. 113 cm^2
36. 249 ft^2
37. 320 yd^2
38. 342 m^2 ; 382 m^2
39. $4256\pi \text{ cm}^2$
40. 1149.8 cm^3
41. 113 m^3
42. 308 ft^3
43. 17 m^3
44. \$71.36
45. 180 cm^3
46. $54\pi \text{ in.}^3$
47. 2.4 in.
48. 480 cm^3
49. 1866.1 in.^3
50. $256\pi \text{ cm}^2$