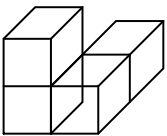


January Exam Review- Unit 1

Multiple Choice

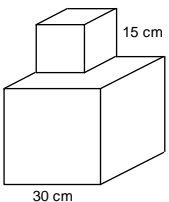
Identify the choice that best completes the statement or answers the question.

1. Determine the value of $\sqrt{0.16}$, **without a calculator**
 a. 0.4 b. 0.07 c. 0.2 d. 0.04
2. Calculate the number whose square root is 0.9, **without a calculator**.
 a. 0.81 b. 0.0081 c. 0.081 d. 0.09
3. Which numbers are perfect squares? (**must do without a calculator**)
 i) 30.25 ii) 32 iii) 28.9 iv) 1.44
 a. i and iv b. ii and iii c. i and ii d. i and iii
4. Determine the value of $\sqrt{\frac{72}{98}}$, without a calculator.
 a. $\frac{6}{14}$ b. $\frac{6}{7}$ c. $\frac{12}{7}$ d. $\frac{36}{49}$
5. Name the two whole numbers whose squares are closest to 22.5. (**must do without a calculator**)
 a. 9, 25 b. 4, 5 c. 4, 9 d. 16, 25
6. Name the two whole numbers whose squares are closest to $\frac{595}{10}$. (**must do without a calculator**)
 a. 49, 64 b. 4, 9 c. 16, 25 d. 7, 8
7. Estimate the value of $\sqrt{0.35}$, to the nearest tenth. (**must do without a calculator**)
 a. 0.5 b. 0.6 c. 0.59 d. 0.9
8. A square has an area of 24.8 cm^2 .
 Determine the side length of the square, to the nearest centimeter.
 a. 4.98 cm b. 4.9 cm c. 5.0 cm d. 5 cm
9. The lengths of the two legs of a right triangle are 6.7 cm and 3.2 cm.
 Determine the length of the hypotenuse to 1 decimal place.
 a. 55.1 cm b. 5.9 cm c. 7.4 cm d. 3.1 cm
10. This composite object is made using centimetre cubes. Determine its surface area.



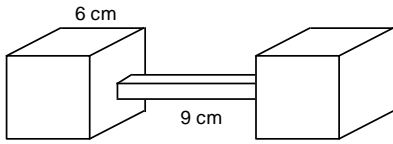
- a. 24 cm^2 b. 20 cm^2
 c. 15 cm^2 d. 18 cm^2

11. This composite object is made of a 15-cm cube on top of a 30-cm cube.
 Determine its surface area.



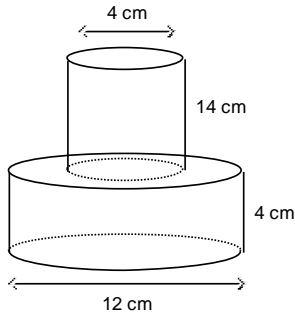
- a. 6750 cm^2 b. 5625 cm^2
 c. 6300 cm^2 d. 6525 cm^2

- ___ 12. This object is composed of two identical cubes joined by a right rectangular prism. The edge length of each cube is 6 cm. The rectangular prism is 9 cm long and has square ends of side length 3 cm. Determine the surface area of the object.



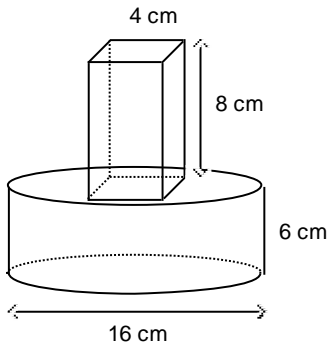
- a. 540 cm^2 b. 558 cm^2
c. 522 cm^2 d. 324 cm^2

- ___ 13. This object is composed of a cylinder of diameter 4 cm and height 14 cm on top of another cylinder of diameter 12 cm and height 4 cm. Determine the surface area of the object, to the nearest square centimeter.



- a. 440 cm^2 b. 527 cm^2
c. 561 cm^2 d. 553 cm^2

- ___ 14. This object is composed of a rectangular prism on top of a cylinder. The rectangular prism has height 8 cm and square ends of side length 4 cm. The cylinder has diameter 16 cm and height 6 cm. Determine the surface area of the object, to the nearest square centimeter.



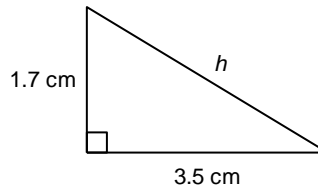
- a. 631 cm^2 b. 816 cm^2
c. 832 cm^2 d. 848 cm^2

Short Answer

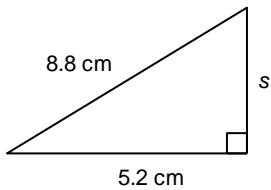
15. Determine the value of $\sqrt{2.89}$.
(must do without a calculator)
16. Determine the value of $\sqrt{\frac{25}{36}}$. *(must do without a calculator)*
17. Determine the value of $\sqrt{6 \times 3 \times 18}$.
(must do without a calculator)
18. A square garden has an area of 240.25 m^2 .
a) Determine the length of one side of the garden.
b) Determine the perimeter of the garden.

19. Determine the value of $\sqrt{0.27}$, to the nearest tenth.
(must do without a calculator)

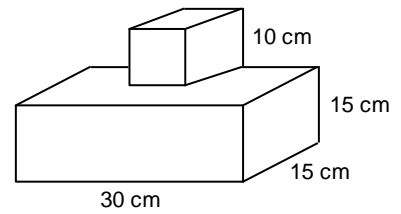
20. Determine the length of the hypotenuse, h .



21. Determine the length of side s .

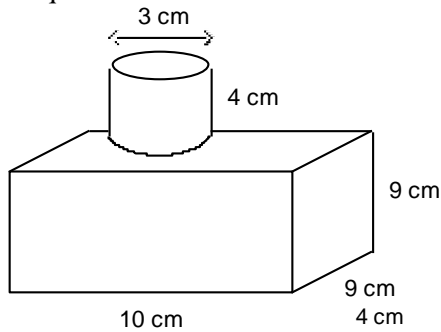


22. This object is composed of a cube on top of a right rectangular prism. Determine the surface area of the object.



23. Determine the surface area of this composite object, to the nearest square centimeter.

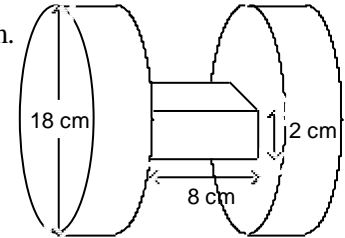
The cylinder has diameter 3 cm and height 4 cm.
 The prism has length 10 cm, width 9 cm, and height 9 cm.



24. This object is composed of two identical cylinders connected by a right rectangular prism.

Each cylinder has diameter 18 cm and height 4 cm.
 The rectangular prism has length 8 cm and square ends of side length 2 cm.

Determine the surface area of the object. Give your answer to the nearest whole number.

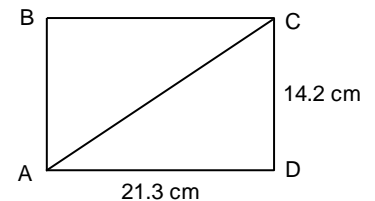


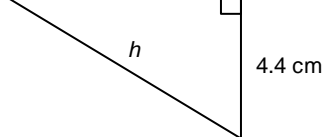
Problem

25. Determine the value of $\sqrt{6.47 + 7.36 + 17.53}$.

26. Determine the value of $\sqrt{\frac{\sqrt{81} + \sqrt{49}}{\sqrt{196} - \sqrt{100}}}$.

27. Determine the length of the diagonal AC of rectangle ABCD, to the nearest centimeter.





Unit 1 Review for January Exam Answer Section

MULTIPLE CHOICE

1. ANS: A PTS: 1 DIF: Easy REF: 1.1 Square Roots of Perfect Squares
LOC: 9.N5 TOP: Number KEY: Procedural Knowledge
2. ANS: A PTS: 1 DIF: Easy REF: 1.1 Square Roots of Perfect Squares
LOC: 9.N5 TOP: Number KEY: Procedural Knowledge
3. ANS: A PTS: 1 DIF: Moderate REF: 1.1 Square Roots of Perfect Squares
LOC: 9.N5 TOP: Number KEY: Conceptual Understanding
4. ANS: B PTS: 1 DIF: Moderate REF: 1.1 Square Roots of Perfect Squares
LOC: 9.N5 TOP: Number KEY: Procedural Knowledge
5. ANS: B PTS: 1 DIF: Easy
REF: 1.2 Square Roots of Non-Perfect Squares LOC: 9.N6
TOP: Number KEY: Conceptual Understanding
6. ANS: D PTS: 1 DIF: Easy
REF: 1.2 Square Roots of Non-Perfect Squares LOC: 9.N6
TOP: Number KEY: Conceptual Understanding
7. ANS: B PTS: 1 DIF: Moderate
REF: 1.2 Square Roots of Non-Perfect Squares LOC: 9.N6
TOP: Number KEY: Procedural Knowledge
8. ANS: C PTS: 1 DIF: Moderate
REF: 1.2 Square Roots of Non-Perfect Squares LOC: 9.N6
TOP: Number KEY: Procedural Knowledge
9. ANS: C PTS: 1 DIF: Moderate
REF: 1.2 Square Roots of Non-Perfect Squares LOC: 9.N6
TOP: Number KEY: Procedural Knowledge
10. ANS: D PTS: 1 DIF: Easy
REF: 1.3 Surface Areas of Objects Made from Right Rectangular Prisms
LOC: 9.SS2 TOP: Shape and Space (3-D Objects and 2-D Shapes)
KEY: Procedural Knowledge
11. ANS: C PTS: 1 DIF: Moderate
REF: 1.3 Surface Areas of Objects Made from Right Rectangular Prisms
LOC: 9.SS2 TOP: Shape and Space (3-D Objects and 2-D Shapes)
KEY: Procedural Knowledge
12. ANS: C PTS: 1 DIF: Easy
REF: 1.4 Surface Areas of Other Composite Objects LOC: 9.SS2
TOP: Shape and Space (3-D Objects and 2-D Shapes) KEY: Procedural Knowledge
13. ANS: D PTS: 1 DIF: Easy
REF: 1.4 Surface Areas of Other Composite Objects LOC: 9.SS2
TOP: Shape and Space (3-D Objects and 2-D Shapes) KEY: Procedural Knowledge
14. ANS: C PTS: 1 DIF: Easy
REF: 1.4 Surface Areas of Other Composite Objects LOC: 9.SS2
TOP: Shape and Space (3-D Objects and 2-D Shapes) KEY: Procedural Knowledge

SHORT ANSWER

15. ANS:
1.7

PTS: 1 DIF: Easy REF: 1.1 Square Roots of Perfect Squares
LOC: 9.N5 TOP: Number KEY: Procedural Knowledge

16. ANS:
 $\frac{5}{6}$

PTS: 1 DIF: Easy REF: 1.1 Square Roots of Perfect Squares
LOC: 9.N5 TOP: Number KEY: Procedural Knowledge

17. ANS:
18

PTS: 1 DIF: Moderate REF: 1.1 Square Roots of Perfect Squares
LOC: 9.N5 TOP: Number KEY: Procedural Knowledge

18. ANS:

- a) The length of one side of the garden is $\sqrt{240.25}$ m, or 15.5 m.
b) The perimeter of the garden is 4×15.5 m, or 62 m.

PTS: 1 DIF: Moderate REF: 1.1 Square Roots of Perfect Squares
LOC: 9.N5 TOP: Number KEY: Procedural Knowledge

19. ANS:

$$\sqrt{0.27} \approx 0.5$$

PTS: 1 DIF: Easy REF: 1.2 Square Roots of Non-Perfect Squares
LOC: 9.N6 TOP: Number KEY: Procedural Knowledge

20. ANS:

The length of the hypotenuse is about 3.9 cm.

PTS: 1 DIF: Moderate REF: 1.2 Square Roots of Non-Perfect Squares
LOC: 9.N6 TOP: Number KEY: Procedural Knowledge

21. ANS:

The length of side s is about 7.1 cm.

PTS: 1 DIF: Moderate REF: 1.2 Square Roots of Non-Perfect Squares
LOC: 9.N6 TOP: Number KEY: Procedural Knowledge

22. ANS:

The surface area of the composite object is 2650 cm^2 .

PTS: 1 DIF: Moderate
REF: 1.3 Surface Areas of Objects Made from Right Rectangular Prisms
LOC: 9.SS2 TOP: Shape and Space (3-D Objects and 2-D Shapes)
KEY: Procedural Knowledge

23. ANS:

The surface area of the object is about 560 cm^2 .

PTS: 1 DIF: Moderate REF: 1.4 Surface Areas of Other Composite Objects
LOC: 9.SS2 TOP: Shape and Space (3-D Objects and 2-D Shapes)
KEY: Procedural Knowledge

24. ANS:

The surface area of the object is about 1526 cm^2 .

PTS: 1 DIF: Moderate REF: 1.4 Surface Areas of Other Composite Objects
LOC: 9.SS2 TOP: Shape and Space (3-D Objects and 2-D Shapes)
KEY: Procedural Knowledge

PROBLEM

25. ANS:

$$\begin{aligned}\sqrt{6.47 + 7.36 + 17.53} &= \sqrt{31.36} \\ &= 5.6\end{aligned}$$

PTS: 1 DIF: Moderate REF: 1.1 Square Roots of Perfect Squares
LOC: 9.N5 TOP: Number KEY: Problem-Solving Skills

26. ANS:

$$\begin{aligned}\sqrt{\frac{\sqrt{81} + \sqrt{49}}{\sqrt{196} - \sqrt{100}}} &= \sqrt{\frac{9 + 7}{14 - 10}} \\ &= \sqrt{\frac{16}{4}} \\ &= 2\end{aligned}$$

PTS: 1 DIF: Difficult REF: 1.1 Square Roots of Perfect Squares
LOC: 9.N5 TOP: Number KEY: Problem-Solving Skills

27. ANS:

$$\begin{aligned}AC^2 &= AD^2 + DC^2 \\ &= 21.3^2 + 14.2^2 \\ &= 655.33 \\ AC &= \sqrt{655.33} \\ &\approx 25.6\end{aligned}$$

The length of AC is about 25.6 cm.

PTS: 1 DIF: Moderate REF: 1.2 Square Roots of Non-Perfect Squares
LOC: 9.N6 TOP: Number KEY: Problem-Solving Skills