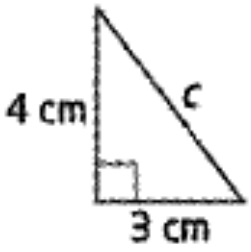
Chapter 8 – Measurement Relationships – Exam Review
MPM1D
Jensen

Section 1: Apply the Pythagorean Theorem

1. Calculate the length of the hypotenuse in each triangle. Round to the nearest tenth of a unit, when necessary.

a)



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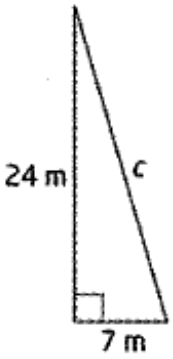
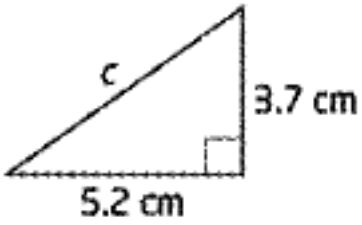


c)



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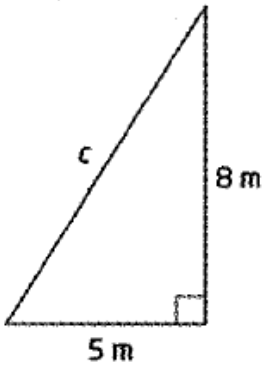
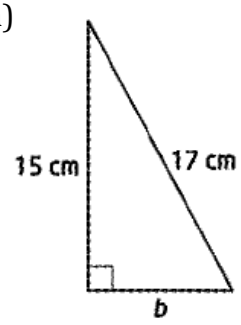
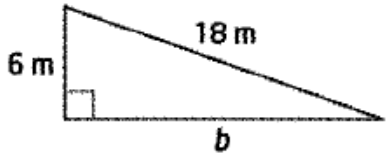


2. Calculate the length of the unknown side in each triangle. Round your answers to the nearest tenth of a unit, when necessary.

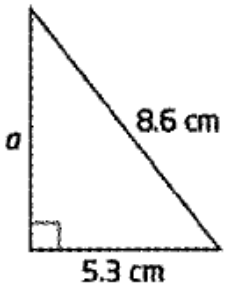
a)



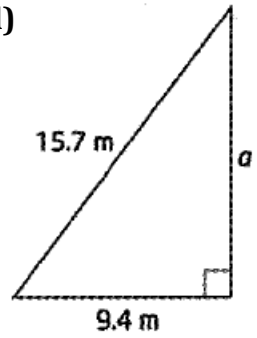
b)



c)

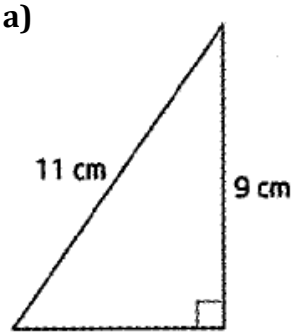


d)



3. Determine the area and perimeter of each right triangle. Round your answers to the nearest tenth when necessary.

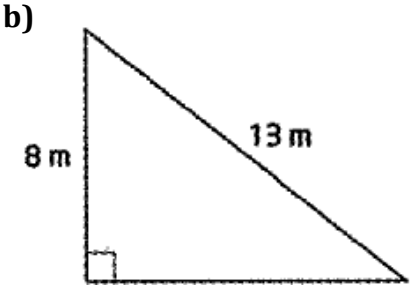
a)



Area =

Perimeter=

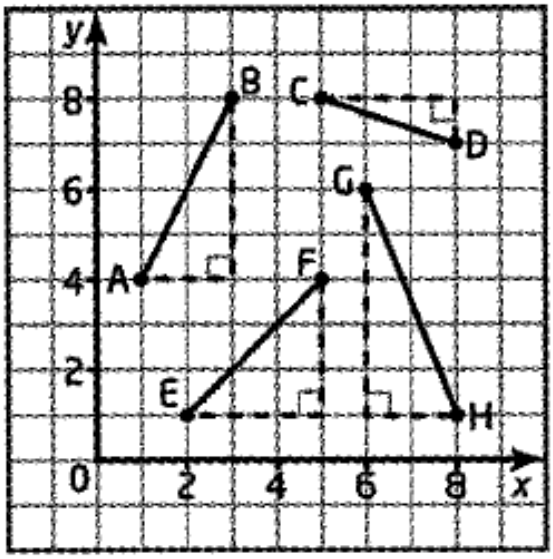
b)



Area =

Perimeter=

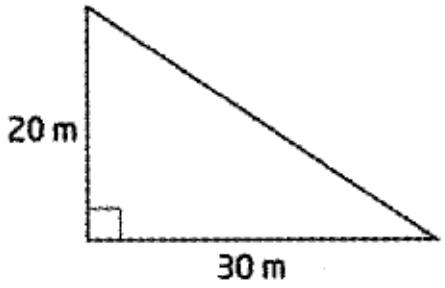
4. Calculate the length of each line segment. Round you answers to the nearest tenth of a unit, when necessary.



a) AB **b)** CD **c)** EF **d)** GH

5. What is the length of a LED TV screen that measures 127 cm by 107 cm? Round your answer to the nearest centimeter.

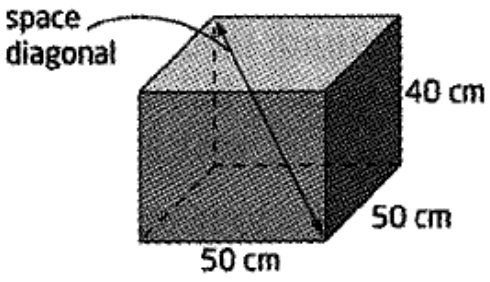
6. a) What length of fencing is needed to surround this triangular section of land, to the nearest meter?



b) If fencing costs $4.50 per meter, how much will it cost to buy enough fencing to surround the garden?

c) What is the area of the triangular section of land?

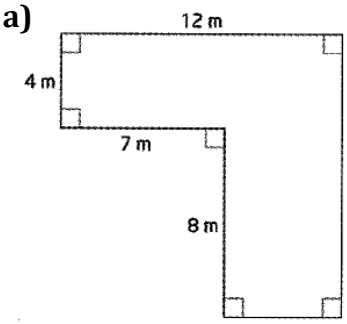
7. Calculate the length of the space diagonal, to the nearest centimeter. **(this is bonus)**



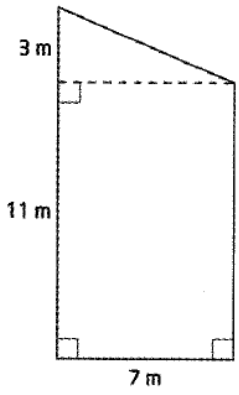
Section 2: Perimeter and Area of Composite Figures

8. For each composite figure, solve for any unknown lengths and then determine the **perimeter.** Round your answers to the nearest tenth of a unit, when necessary.

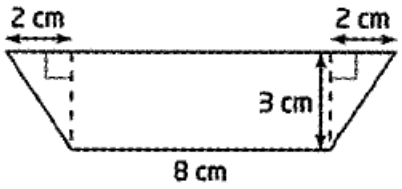
a)



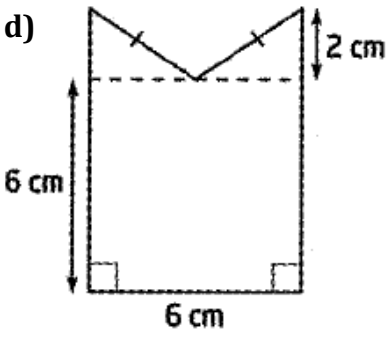
b)



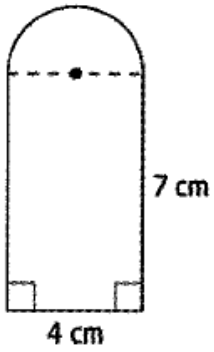
c)



d)

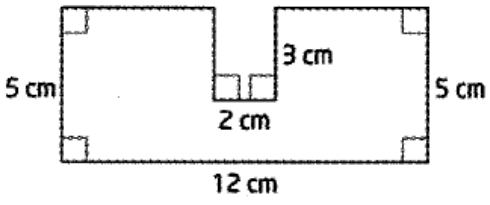


e)

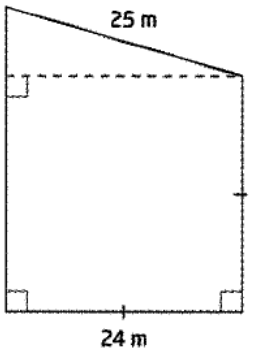


9. Calculate the **area** of each composite figure. Round your answers to the nearest square unit, when necessary.

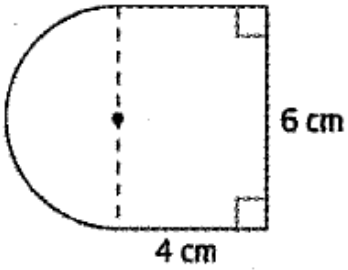
a)



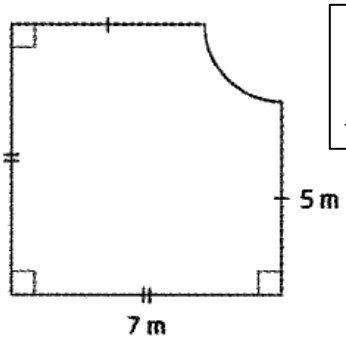
b)



c)

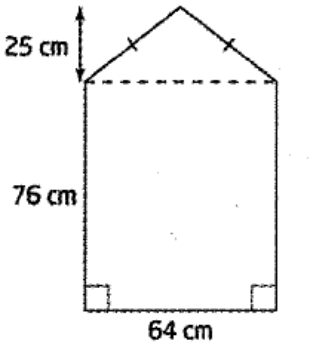


d)

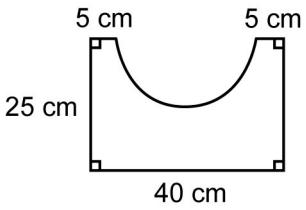


***Hint**: a quarter of a circle has been cut out from the square*

10. What is the area of the following window?



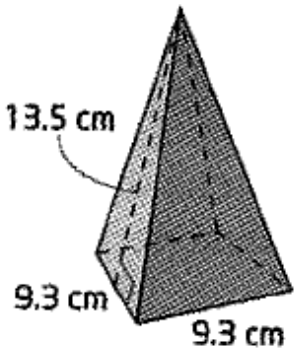
11. Find the area and perimeter of the following shape. Round to the nearest tenth of a unit.



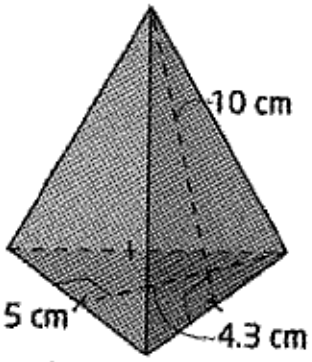
Section 3: 8.3 Surface area and Volume of Prisms and Pyramids

12. Determine the surface area of each object. Round to the nearest tenth of a square unit, when necessary.

a)

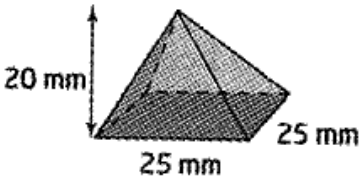


b)

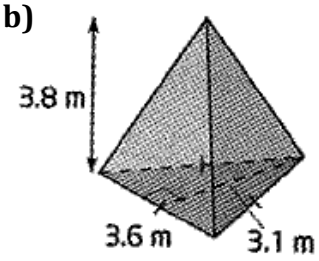


13. Determine the volume of each object. Round to the nearest cubic unit, when necessary.

a)

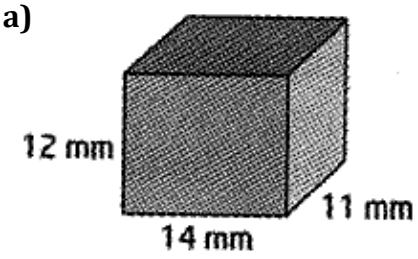


b)

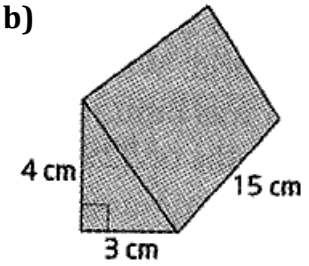


14. Determine the surface area of each object

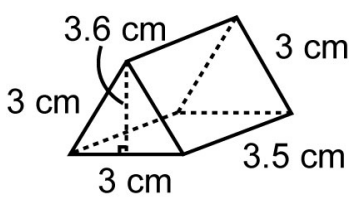
a)



b)

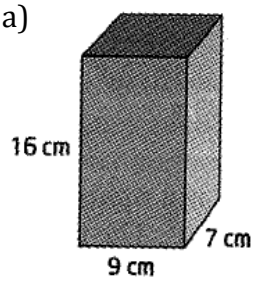


c)

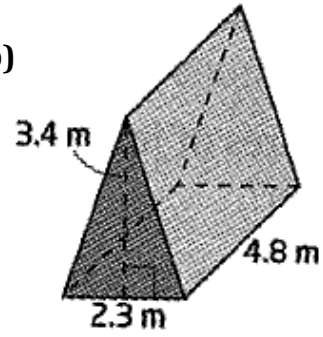


15) Determine the volume of each object

a)



b)



16) A rectangular prism has length 4 m, width 3 m, and height 5 m.

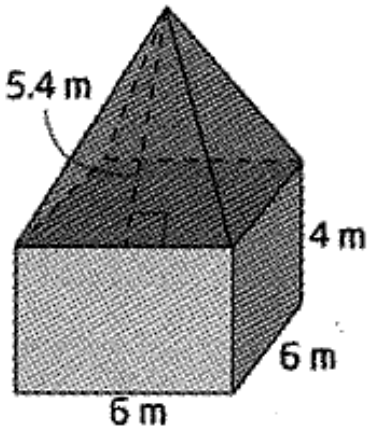
a) Determine the surface area of the prism

b) Determine the volume of the prism

17) A box of crackers has a volume of 5000 cm^3. If its length is 25 cm and its width is 8 cm, what is its height?

18) Phil has built a garden shed in the shape shown.

a) Calculate the volume of the shed, to the nearest cubic meter



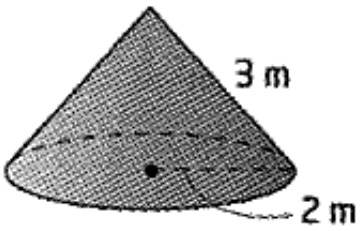
b) Phil plans to paint the outside of the shed, including the roof but not the floor. One can of paint covers 16 m^2. How many cans of paint will Phil need?

c) If one can of paint costs $19.95, what is the total cost including 6% GST and 8% PST

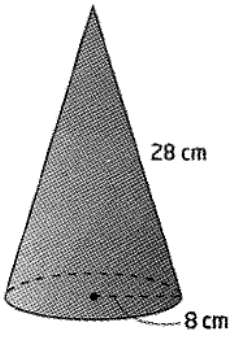
Section 4: 8.4/8.5 Volume and Surface Area of Cones

19. Find the surface area of each cone

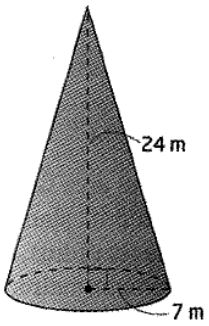
a)



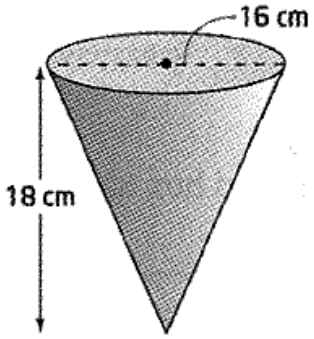
b)



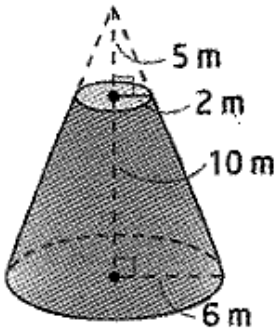
c)



d)

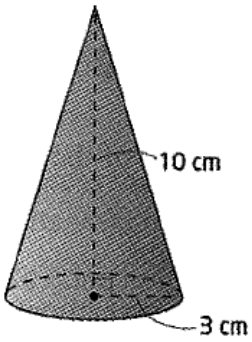


20. The frustum of a cone is the part that remains after the top portion has been removed by making a cut parallel to the base. Calculate the surface area of this frustum, to the nearest square metre.

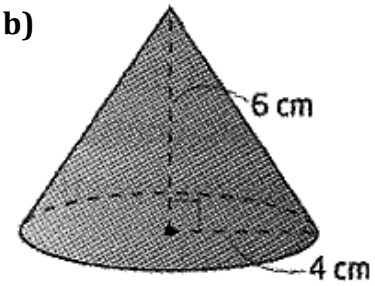


21. Find the volume of the following cones. Round your answer to the nearest cubic unit, when necessary.

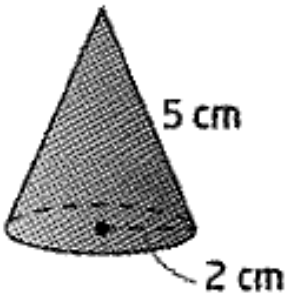
a)



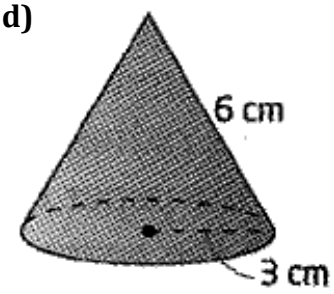
b)



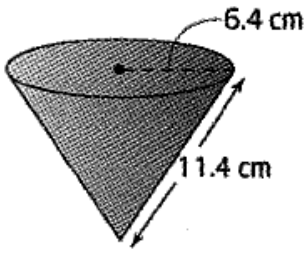
c)



d)



22. Giacomo has a water cup in the shape of a cone. The water cup has a radius of 6.4 cm and a slant height of 11.4 cm. <u>How much water can the paper cup hold</u>, to the nearest tenth of a cubic centimeter?

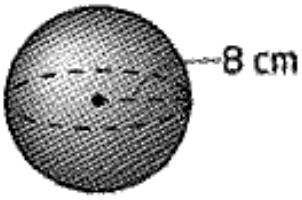


23. Sophia has constructed a cone-shaped funnel from paper. The funnel has a volume of 62 cm^3 and a radius of 4 cm. What is the height of the paper cup? Round your answer to the nearest centimeter.

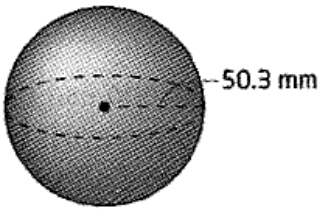
Section 5: 8.6/8.7 Volume and Surface Area of Spheres

24. Find the surface area of each of the following spheres. Round your answer to the nearest square unit.

a)

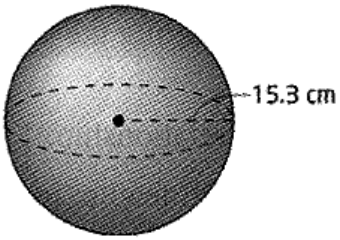


b)

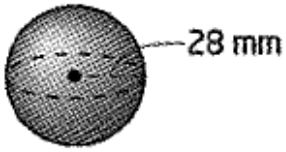


25. Calculate the volume of each sphere. Round your answers to the nearest cubic unit.

a)



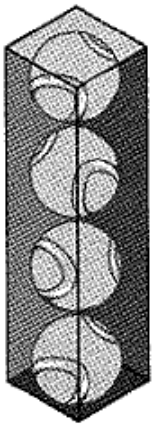
b)



26. A baseball has a diameter of 7.5 cm. Calculate the volume of the baseball. Round your answer to the nearest cubic centimeter.

27. Tennis balls are stacked four high in a rectangular prism package. The diameter of one ball is 6.5 cm.

a) Calculate the volume of the rectangular prism package.



b) What is the minimum amount of material needed to make the box?

c) Determine the amount of empty space in the rectangular prism package.

Chapter 8 Exam Review Answers

1) a) 5 cm b) 25m c) 6.4 cm d) 9.4 m

2) a) 8 cm b) 17.0 m c) 6.8 cm d) 12.6 m

3) a) Area = 28.5 cm^2 Perimeter = 26.3 cm b) Area = 41.0 m^2 Perimeter = 31.2 m

4) a) 4.5 b) 3.2 c) 4.2 d) 5.4

5) 166 cm

6) a) 86 m b) $387 c) 300 m^2

7) 81 cm

8) a) 48 m b) 39.6 m c) 27.2 cm d) 29.2 cm e) 24.3 cm

9) a) 54 cm^2 b) 660 m^2 c) 38 cm^2 d) 46 m^2

10) 5664 cm^2

11) Area = 646.6 cm^2 Perimeter = 147.1 cm

12) a) 337.6 cm^2 b) 85.8 cm^2

13) a) 4167 mm^3 b) 7 m^3

14) a) 908 mm^2 b) 192 cm^2 c) 42.3 cm^2

15) a) 1008 cm^3 b) 19 m^3

16) a) 94 m^2 b) 60 m^3

17) 25 cm

18) a) 198 m^3 b) 11 c) $250.17

19) a) 31 m^2 b) 905 cm^2 c) 704 m^2 d) 696.2 cm^2

20) 312.3 m^2

21) a) 94 cm^3 b) 101 cm^3 c) 19 cm^3 d) 49 cm^3

22) 403.2 cm^3

23) 4 cm

24) a) 804 cm^2 b) 31 794 mm^2

25) a) 15 002 cm^3 b) 91 952 mm^3

26) 221 cm^3

27) a) 1098.5 cm^3 b) 760.5 cm^2 c) 523.3 cm^3