

حلول مراجعة نهائية حسب الهيكل الوزاري منهج ريفيل



تم تحميل هذا الملف من موقع المناهج الإماراتية

موقع المناهج ← المناهج الإماراتية ← الصف السابع ← رياضيات ← الفصل الثالث ← ملفات متنوعة ← الملف

تاريخ إضافة الملف على موقع المناهج: 2025-05-27 12:11:42

ملفات اكتب للمعلم اكتب للطالب | اختبارات الكترونية | اختبارات | حلول | عروض بوربوينت | أوراق عمل
منهج انجليزي | ملخصات وتقارير | مذكرات وبنوك | الامتحان النهائي | للمدرس

المزيد من مادة
رياضيات:

التواصل الاجتماعي بحسب الصف السابع



صفحة المناهج
الإماراتية على
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

المزيد من الملفات بحسب الصف السابع والمادة رياضيات في الفصل الثالث

تجميعية تدريبات حسب الهيكل الوزاري منهج ريفيل	1
أسئلة الامتحان النهائي القسم الالكتروني المسار المتقدم مع الحلول	2
تجميعية صفحات الكتاب وفق الهيكل الوزاري حسب منهج بريدج	3
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Grade 7
Term 3 Revision
2024-2025

School

EOT3 Exam Revision

Module 9-11

Measure Figures

Probability

Sampling and Statistics

Part (1)

15 main questions

4 Marks per main question

MCQ

Part (2)

5 main questions

(6-10) Marks per main question

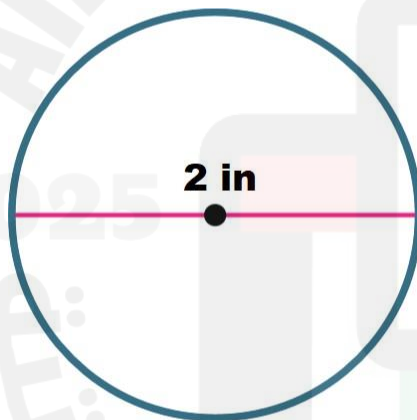
FRQ

1. Find the circumference of the watch face. Use 3.14 for π . Round to the nearest hundredth if necessary.

$$C = \pi d$$

$$C \approx 2 \times (3.14)$$

$$C \approx 6.28 \text{ in. } \checkmark$$

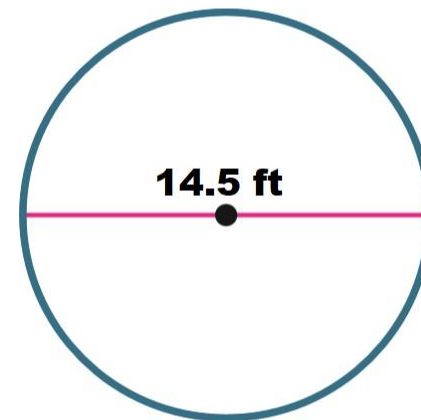


2. A circular fence is being used to surround a dog house. How much fencing is needed to build the fence? Use 3.14 for π . Round to the nearest hundredth if necessary.

$$C = \pi d$$

$$C \approx 14.5 \times (3.14)$$

$$C \approx 45.53 \text{ ft. } \checkmark$$



3. Find the circumference of a circle with a radius of $31\frac{1}{2}$ yards. Use 3.14 for π . Write your answer as a decimal rounded to the nearest hundredth.

$$C = 2\pi r \quad \text{Circumference of a circle}$$

$$C = 2\pi(31.5) \quad \text{Replace } r \text{ with } 31.5$$

$$C = 63\pi$$

$$C \approx 63(3.14) \quad \text{Replace } \pi \text{ with } 3.14.$$

$$C \approx 197.82 \text{ yards} \quad \text{Simplify. } \checkmark$$

4. Find the circumference of a circle with a radius of 4.4 inches. Use 3.14 for π . Round to the nearest hundredth if necessary.

$$C = 2\pi r \quad \text{Circumference of a circle}$$

$$C = 2\pi(4.4) \quad \text{Replace } r \text{ with } 4.4$$

$$C = 8.8\pi$$

$$C \approx 8.8(3.14) \quad \text{Replace } \pi \text{ with } 3.14.$$

$$C \approx 27.63 \text{ in.} \quad \text{Simplify. } \checkmark$$

5. The world's largest flower, the Rafflesia, has a circumference of 286 centimeters. Find the approximate diameter of the flower. Use 3.14 for π . Round to the nearest hundredth if necessary.

$$d = \frac{C}{\pi}$$

Diameter of a circle

$$d \approx \frac{286}{3.14}$$

$$d \approx 91.08 \text{ cm}$$



Simplify.

6. A helicopter pad has a circumference of $47\frac{1}{2}$ yards. Find the approximate diameter of the helicopter pad. Use 3.14 for π . Write your answer as a decimal rounded to the nearest hundredth if necessary.

$$d = \frac{C}{\pi}$$

Diameter of a circle

$$d \approx \frac{47.5}{3.14}$$

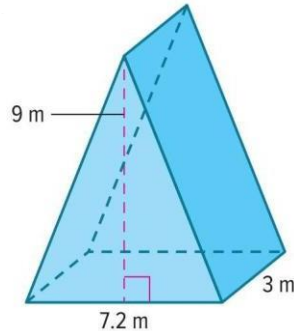
$$d \approx 15.13 \text{ yards}$$



Simplify.

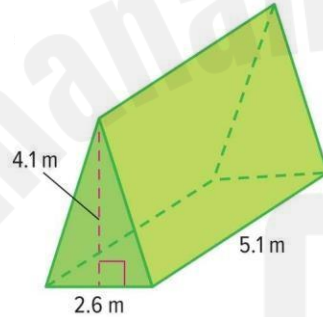
Find the volume of each figure. Round to the nearest tenth if necessary.

3.



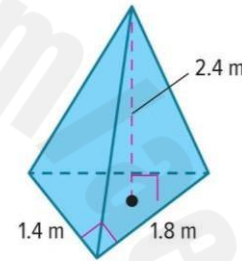
$$\begin{aligned}
 V &= B \cdot h \\
 &= \left(\frac{1}{2} \cdot b \cdot h\right) \cdot h \\
 &= \left(\frac{1}{2} \cdot 7.2 \cdot 9\right) \cdot 3 \\
 &= 97.2 \text{ m}^3 \checkmark
 \end{aligned}$$

4.



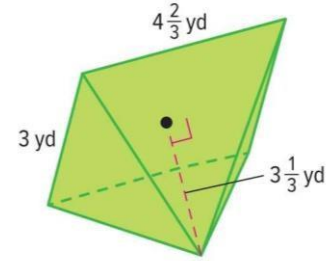
$$\begin{aligned}
 V &= B \cdot h \\
 &= \left(\frac{1}{2} \cdot b \cdot h\right) \cdot h \\
 &= \left(\frac{1}{2} \cdot 2.6 \cdot 4.1\right) \cdot 5.1 \\
 &= 27.2 \text{ m}^3 \checkmark
 \end{aligned}$$

5.



$$\begin{aligned}
 V &= \frac{1}{3} \cdot B \cdot h \\
 &= \frac{1}{3} \cdot \left(\frac{1}{2} \cdot b \cdot h\right) \cdot h \\
 &= \frac{1}{3} \cdot \left(\frac{1}{2} \cdot 1.4 \cdot 1.8\right) \cdot 2.4 \\
 &= 1.0 \text{ m}^3 \checkmark
 \end{aligned}$$

6.



$$\begin{aligned}
 V &= \frac{1}{3} \cdot B \cdot h \\
 &= \frac{1}{3} \cdot (\ell \cdot w) \cdot h \\
 &= \frac{1}{3} \cdot \left(4\frac{1}{3} \cdot 3\right) \cdot 3\frac{1}{3} \\
 &= 15.6 \text{ yd}^3 \checkmark
 \end{aligned}$$

Find the surface area of each prism. Round to the nearest tenth if necessary.

1.

$$\text{S.A.} = 2\ell h + 2\ell w + 2hw$$

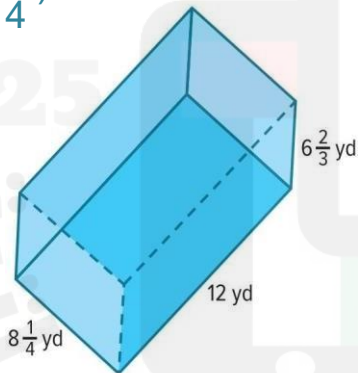
$$= 2(12 \cdot 6 \frac{2}{3}) + 2(12 \cdot 8 \frac{1}{4}) + 2(6 \frac{2}{3} \cdot 8 \frac{1}{4})$$

$$= 2(12 \cdot \frac{20}{3}) + 2(12 \cdot \frac{33}{4}) + 2(\frac{20}{3} \cdot \frac{33}{4})$$

$$= 2(4 \cdot 20) + 2(3 \cdot 33) + 2(5 \cdot 11)$$

$$= 160 + 198 + 110$$

$$= 468 \text{ yd}^2 \checkmark$$



2.

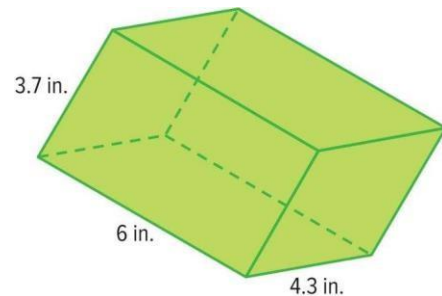
$$\text{S.A.} = 2\ell h + 2\ell w + 2hw$$

$$= 2(6 \cdot 3.7) + 2(6 \cdot 4.3) + 2(3.7 \cdot 4.3)$$

$$= 44.4 + 51.6 + 31.82$$

$$= 127.82$$

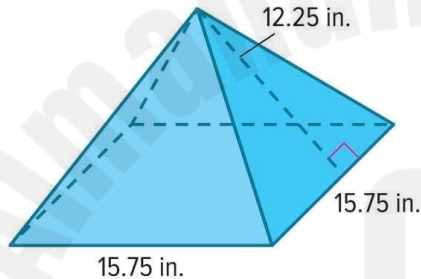
$$\approx 127.8 \text{ in}^2 \checkmark \text{ Nearest tenth}$$



Find the surface area of each pyramid. Round to the nearest tenth if necessary.

5. Find the area of the base.

$$\begin{aligned} A &= s \cdot s \\ &= 15.75 \cdot 15.75 \\ &\approx 248.06 \text{ in}^2 \quad \checkmark \end{aligned}$$



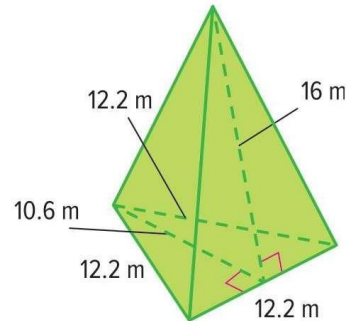
Find the area of the 4 lateral faces.

$$\begin{aligned} A &= 4\left(\frac{1}{2} \cdot b \cdot h\right) \\ A &= 4\left(\frac{1}{2} \cdot 15.75 \cdot 12.25\right) \\ A &\approx 385.88 \text{ in}^2 \quad \checkmark \end{aligned}$$

$$\therefore \text{T.S.A} = 248.06 + 385.88 \approx 633.9 \text{ in}^2 \quad \checkmark$$

6. Area of the base:

$$\begin{aligned} A &= \frac{1}{2} \cdot b \cdot h \\ A &= \frac{1}{2} \cdot 12.2 \cdot 10.6 \\ A &= 64.66 \text{ in}^2 \quad \checkmark \end{aligned}$$



Find the area of the 3 lateral faces.

$$\begin{aligned} A &= 3\left(\frac{1}{2} \cdot b \cdot h\right) \\ A &= 3\left(\frac{1}{2} \cdot 12.2 \cdot 16\right) \\ A &= 292.8 \text{ in}^2 \quad \checkmark \end{aligned}$$

$$\therefore \text{T.S.A} = 64.66 + 292.8 = 357.5 \text{ m}^2 \quad \checkmark$$

2. Anson's toy rocket is shown. What is the volume of the rocket? Round to the nearest tenth if necessary.

$$\begin{aligned}
 V &= \frac{1}{3} \cdot B \cdot h \quad (1) \\
 &= \frac{1}{3} \cdot (\ell \cdot w) \cdot h \\
 &= \frac{1}{3} \cdot (1.1 \cdot 1.1) \cdot 2.1 \\
 &= 0.847 \text{ in}^3 \quad \checkmark
 \end{aligned}$$

$$\begin{aligned}
 V &= B \cdot h \quad (2) \\
 &= (\ell \cdot w) \cdot h \\
 &= (8.2 \cdot 1.1) \cdot 1.1 \\
 &= 9.922 \text{ in}^3 \quad \checkmark
 \end{aligned}$$

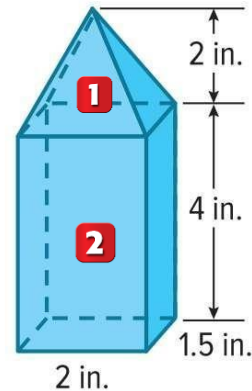


$$\begin{aligned}
 \therefore \text{Total Volume} &= 0.847 + 9.922 \\
 &= 10.769 \\
 &\approx 10.8 \text{ in}^3 \quad \checkmark
 \end{aligned}$$

3. What is the volume of the birdfeeder? Round to the nearest tenth if necessary.

$$\begin{aligned}
 V &= \frac{1}{3} \cdot B \cdot h \quad (1) \\
 &= \frac{1}{3} \cdot (\ell \cdot w) \cdot h \\
 &= \frac{1}{3} \cdot (2 \cdot 1.5) \cdot 2 \\
 &= 2 \text{ in}^3 \quad \checkmark
 \end{aligned}$$

$$\begin{aligned}
 V &= B \cdot h \quad (2) \\
 &= (\ell \cdot w) \cdot h \\
 &= (2 \cdot 1.5) \cdot 4 \\
 &= 12 \text{ in}^3 \quad \checkmark
 \end{aligned}$$



$$\begin{aligned}
 \therefore \text{Total Volume} &= 12 + 2 \\
 &= 14 \text{ in}^3 \quad \checkmark
 \end{aligned}$$

4. Zahir made this wooden perch for his pet bird. What is the volume of the bird perch? Round to the nearest tenth if necessary.

Volume of 2 rectangular prisms:

$$V = 2 \cdot B \cdot h \quad (1)$$

$$= 2 \cdot (\ell \cdot w) \cdot h$$

$$= 2 \cdot (6 \cdot 5) \cdot 0.5$$

$$= 30 \text{ cm}^3 \quad \checkmark$$

Volume of Rectangular prism:

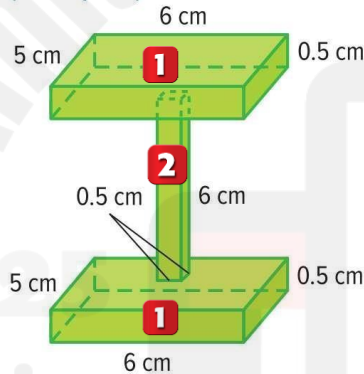
$$V = B \cdot h \quad (2)$$

$$= 2 \cdot (\ell \cdot w) \cdot h$$

$$= 2 \cdot (0.5 \cdot 0.5) \cdot 6$$

$$= 1.5 \text{ cm}^3 \quad \checkmark$$

$$\therefore \text{Total Volume} = 30 + 1.5 \\ = 31.5 \text{ cm}^3 \quad \checkmark$$



5. Find the surface area of the composite solid. Round to the nearest tenth if necessary.

Find the areas of the 5 faces of rectangular prism.

$$\text{Area of sides} = 2(5.1 \cdot 4.2) = 42.84 \text{ ft}^2$$

$$\text{Area of bottom} = 16.25 \cdot 5.1 = 82.875 \text{ ft}^2$$

Area of front and back:

$$A = 2(\ell \cdot w) = 2(16.25 \cdot 4.2) = 136.5 \text{ ft}^2$$

$$\text{T.S.A of Rectangular Prism} = 42.84 + 82.875 + 136.5 = 262.215 \text{ ft}^2 \quad \checkmark$$

Find the areas of the 4 faces of Triangular prism.

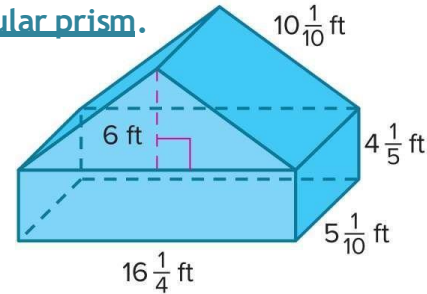
Area of Bases:

$$A = 2\left(\frac{1}{2} \cdot 16.25 \cdot 6\right) \\ = 97.5 \text{ ft}^2$$

Congruent Rectangular Faces:

$$A = 2(\ell \cdot w) \\ = 2(10.1 \cdot 5.1) \\ = 103.2 \text{ ft}^2$$

$$\therefore \text{T.S.A} = 262.215 + 97.5 + 103.2 \\ = 462.7 \text{ ft}^2 \quad \checkmark$$



7. For a charity drive, each classroom is given a coin box made of cardboard like the one shown. The student council wants to construct a version of the coin box that has scale factor of 3 times the classroom coin box. Is 100 square feet of cardboard enough to build the new coin box? Write an argument that can be used to defend your solution.

In the coinbox, there are five square faces and four triangular faces.

1. Find the areas of the 5 squares.

$$A = 5 \cdot (s \cdot s) = 5 \cdot (15 \cdot 15) = 1125 \text{ in}^2 \quad \checkmark$$

2. Find the areas of the 4 triangular faces.

$$A = 4 \left(\frac{1}{2} \cdot b \cdot h \right) = 4 \left(\frac{1}{2} \cdot 15 \cdot 10 \right) = 330 \text{ in}^2 \quad \checkmark$$

$$\text{Total surface area of coin box} = 1125 + 330 = 1455 \text{ in}^2 \quad \checkmark$$

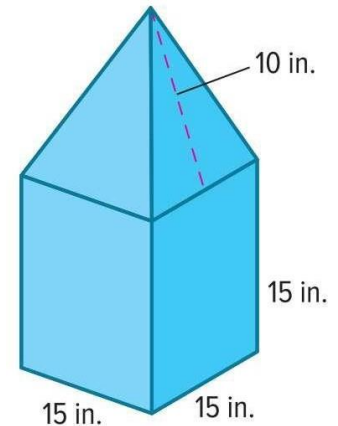
$$\text{Convert } 1,425 \text{ in}^2 \text{ to ft}^2. \text{ Note: } 144 \text{ in}^2 = 1 \text{ ft}^2. \therefore 1,425 \div 144 \approx 9.89 \text{ ft}^2 \quad \checkmark$$

Total surface area of coin box is about 9.89 ft²

Find the surface area of the new version.

$$\begin{aligned} \text{S.A.} &= 9.89 \times 3^2 \\ &= 89.01 \text{ ft}^2 \quad \checkmark \end{aligned}$$

Because $89.01 < 100$ there is enough cardboard available.



6. Find the surface area of the composite solid. Round to the nearest tenth if necessary.

Find the areas of the 5 faces of rectangular prism.

Area of sides:

$$A = 2(\ell \cdot w) = 2(3.5 \cdot 3.5) = 24.5 \text{ m}^2$$

Area of top (only):

$$A = \ell \cdot w = 9 \cdot 3.5 = 31.5 \text{ m}^2 \quad \checkmark$$

Area of front and back:

$$A = 2(\ell \cdot w) = 2(9 \cdot 3.5) = 63 \text{ m}^2$$

$$\text{T.S.A of Rectangular Prism} = 24.5 + 31.5 + 63 = 119 \text{ m}^2 \quad \checkmark$$

Find the areas of the 4 faces of Triangular prism.

Area of Bases:

$$\begin{aligned} A &= 2\left(\frac{1}{2} \cdot 9.035 \cdot 0.8\right) \\ &= 7.2 \text{ m}^2 \quad \checkmark \end{aligned}$$

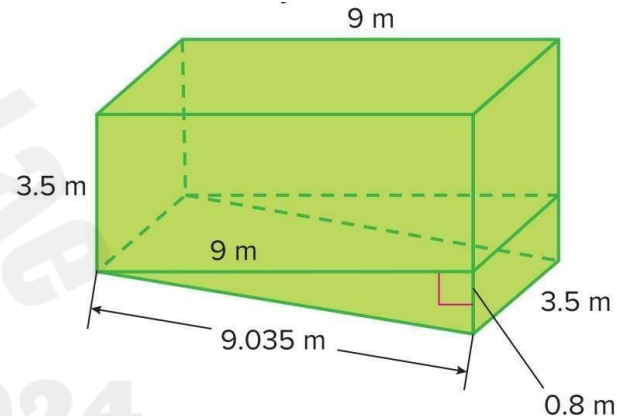
Area of side face = $\ell \cdot w$

$$\begin{aligned} &= 3.5 \cdot 0.8 \\ &= 2.8 \text{ m}^2 \quad \checkmark \end{aligned}$$

Area of side bottom face = $\ell \cdot w$

$$\begin{aligned} &= 9.035 \cdot 3.5 \\ &= 31.6 \text{ m}^2 \quad \checkmark \end{aligned}$$

$$\begin{aligned} \therefore \text{T.S.A} &= 119 + 7.2 + 2.8 + 31.6 \\ &= 160.6 \text{ m}^2 \quad \checkmark \end{aligned}$$



Learn: Find the surface area of the composite figure.

S.A. of Rectangular Prism (1):

$$\text{S.A.} = 2\ell h + 2\ell w + 2hw$$

$$= 2(8 \cdot 9) + 2(8 \cdot 6) + (9 \cdot 6)$$

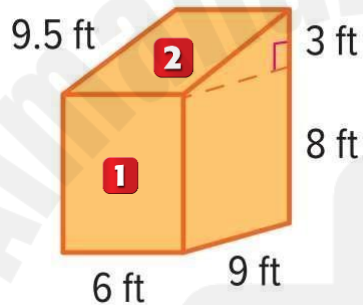
$$= 144 + 96 + 54$$

$$= 294 \text{ ft}^2 \quad \checkmark$$

S.A. of Triangular Prism (2):

$$A = 2\left(\frac{1}{2} \cdot 9 \cdot 3\right) \cdot (3 \cdot 6) \cdot (9.5 \cdot 6) = 27 + 18 + 57 = 102 \text{ ft}^2$$

$$\therefore \text{T.S.A} = 294 + 102 = 396 \text{ ft}^2 \quad \checkmark$$



1. Mya's lunchbox is shown. What is the volume of the lunchbox? Round to the nearest tenth if necessary.

$$V = B \cdot h \quad (1)$$

$$= (\ell \cdot w) \cdot h$$

$$= (10.6 \cdot 8) \cdot 4.25$$

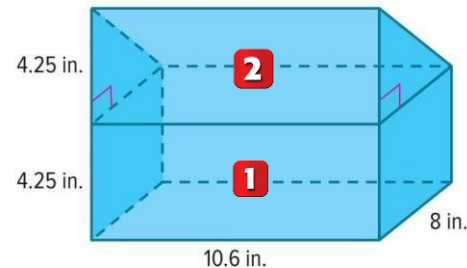
$$= 360.4 \text{ in}^3 \quad \checkmark$$

$$V = B \cdot h \quad (2)$$

$$= \left(\frac{1}{2} \cdot b \cdot h\right) \cdot \ell$$

$$= \left(\frac{1}{2} \cdot 8 \cdot 4.25\right) \cdot 10.6$$

$$= 180.2 \text{ in}^3 \quad \checkmark$$



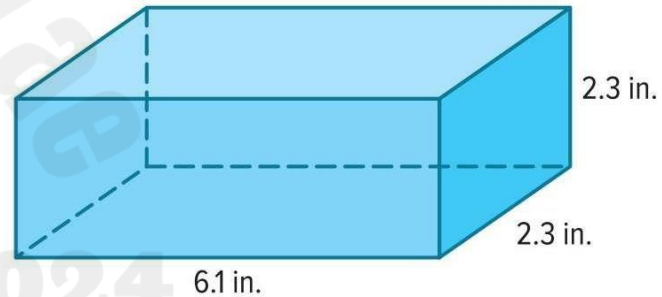
$$\therefore \text{Total Volume} = 360.4 + 180.2 \\ = 540.6 \text{ in}^3 \quad \checkmark$$

7. Oscar is making a play block for his baby sister by gluing fabric over the entire surface of a foam block. Is 65 square inches of fabric enough? If so, how much fabric will remain? If not, how much more fabric will he need?

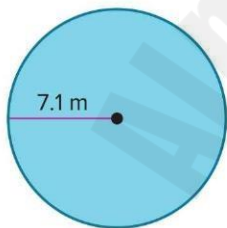
$$\begin{aligned}\text{S.A.} &= 2\ell h + 2\ell w + 2hw \\ &= 2(6.1 \cdot 2.3) + 2(6.1 \cdot 2.3) + 2(2.3 \cdot 2.3) \\ &= 28.06 + 28.06 + 10.58 \\ &= 66.7 \text{ in}^2 \checkmark\end{aligned}$$

Since $66.7 > 65$ he does not have enough fabric.

He would need an additional $66.7 - 65 = 1.7 \text{ in}^2$ of fabric. \checkmark



- 1.** What is the area of one side of the penny? Use 3.14 for π . Round to the nearest hundredth if necessary.



$$A = \pi r^2$$

$$A = 3.14 \times 7.1 \times 7.1$$

$$A \approx 158.29 \text{ m}^2 \quad \checkmark$$

- 2.** Find the area of the circle. Use 3.14 for π . Round to the nearest hundredth if necessary.

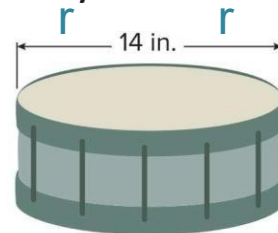


$$A = \pi r^2$$

$$A = 3.14 \times 4.25 \times 4.25$$

$$A \approx 56.72 \text{ in}^2 \quad \checkmark$$

- 3.** What is the area of the drumhead on the drum? Use 3.14 for π . Round to the nearest hundredth if necessary.



$$D = 14 \text{ in. } r = 14 \div 2 = 7$$

$$A = \pi r^2$$

$$A = 3.14 \times 7 \times 7$$

$$A \approx 153.86 \text{ in}^2 \quad \checkmark$$

4. Find the area of the circle. Use 3.14 for π . Round to the nearest hundredth if necessary.



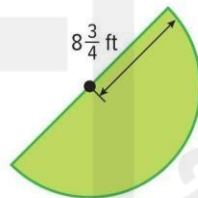
$$D = 19 \text{ mm. } r = 19 \div 2 = 9.5$$

$$A = \pi r^2$$

$$A = 3.14 \times 9.5 \times 9.5$$

$$A \approx 283.39 \text{ mm}^2 \checkmark$$

5. Mr. Ling is adding a pond in the shape of a semicircle in his backyard. What is the area of the pond? Use 3.14 for π . Round to the nearest hundredth if necessary.

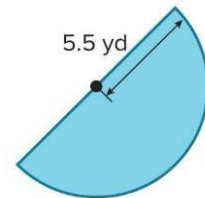


$$A = \frac{1}{2}\pi r^2$$

$$A = \frac{1}{2} \times 3.14 \times 8.75 \times 8.75$$

$$A \approx 120.20 \text{ ft}^2 \checkmark$$

6. Vidur needs to buy mulch for his garden. What is the area of his garden? Use 3.14 for π . Round to the nearest hundredth if necessary.



$$A = \frac{1}{2}\pi r^2$$

$$A = \frac{1}{2} \times 3.14 \times 5.5 \times 5.5$$

$$A \approx 47.49 \text{ yd}^2 \checkmark$$

7. The exact circumference of a circle is 18π inches. What is the approximate **area of the circle**? Use 3.14 for π . Round to the nearest hundredth if necessary.

Step 1:

$$C = 2\pi r$$

Circumference of a circle

$$18\pi = 2\pi r$$

Replace C with 18π .

$$\frac{18\pi}{2\pi} = \frac{2\pi r}{2\pi}$$

✓ $9 = r$

Step 2:

$$A = \pi r^2$$

$$A = 3.14 \times 9 \times 9$$

Replace r with 9.

$$A \approx 254.34 \text{ in}^2$$
 ✓

Find the area of each figure. If necessary, use 3.14 for π and round to the nearest hundredth.

1.

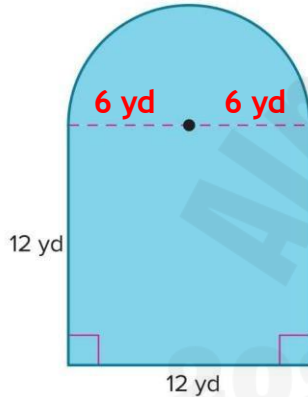
Area of Square

$$\begin{aligned} A &= \ell \cdot w \\ &= 12 \cdot 12 \\ &= 144 \text{ yd}^2 \end{aligned}$$

Area of Semicircle

$$\begin{aligned} A &= \frac{1}{2} \pi r^2 \\ &= \frac{1}{2} \cdot 3.14 \cdot 6 \cdot 6 \\ &= 56.25 \text{ yd}^2 \end{aligned}$$

$$\therefore A = 144 + 56.25 = 200.52 \text{ yds}^2$$



2.

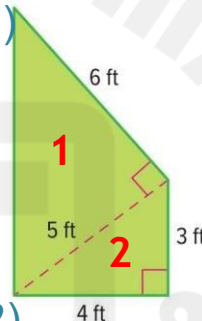
$$A = \frac{1}{2} \cdot b \cdot h \text{ (Triangle 1)}$$

$$\begin{aligned} &= \frac{1}{2} \cdot 5 \cdot 6 \\ &= 15 \text{ ft}^2 \end{aligned}$$

$$A = \frac{1}{2} \cdot b \cdot h \text{ (Triangle 2)}$$

$$\begin{aligned} &= \frac{1}{2} \cdot 4 \cdot 3 \\ &= 6 \text{ ft}^2 \end{aligned}$$

$$\therefore \text{Total Area} = 15 + 6 = 21 \text{ ft}^2$$



3.

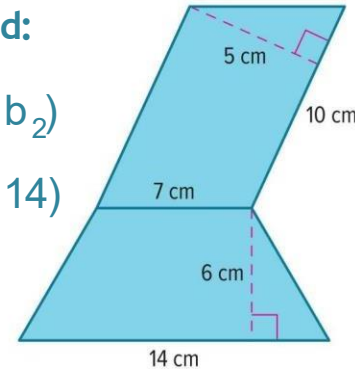
Area of Trapezoid:

$$\begin{aligned} A &= \frac{1}{2} \cdot h \cdot (b_1 + b_2) \\ &= \frac{1}{2} \cdot 6 \cdot (7 + 14) \\ &= \frac{1}{2} \cdot 6 \cdot (21) \\ &= 63 \text{ cm}^2 \end{aligned}$$

Parallelogram:

$$\begin{aligned} A &= b \cdot h \\ &= 10 \cdot 5 \\ &= 50 \text{ cm}^2 \end{aligned}$$

$$\therefore \text{Total Area} = 50 + 63 = 113 \text{ cm}^2$$



Find the area of each figure. If necessary, use 3.14 for π and round to the nearest hundredth.

4.

$$A = \frac{1}{2} \cdot b \cdot h \text{ (Triangle)}$$

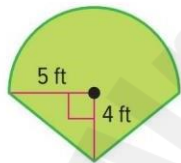
$$= \frac{1}{2} \cdot 4 \cdot 10$$

$$= 20 \text{ ft}^2 \quad \checkmark$$

$$A = \frac{1}{2} \pi r^2 \text{ (Semicircle)}$$

$$= \frac{1}{2} \cdot 3.14 \cdot 5 \cdot 5$$

$$= 39.25 \text{ ft}^2 \quad \checkmark$$



$$\therefore \text{T.A.} = 20 + 39.25 = 59.25 \text{ ft}^2 \quad \checkmark$$

5. Area of Triangle:

$$A = \frac{1}{2} \cdot b \cdot h$$

$$= \frac{1}{2} \cdot 6 \cdot 4$$

$$= 12 \text{ m}^2 \quad \checkmark$$

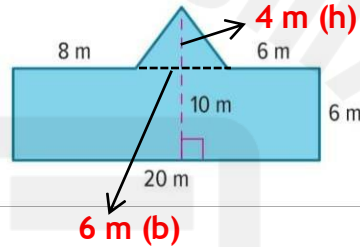
Area of Square:

$$A = \ell \cdot w$$

$$= 6 \cdot 20$$

$$= 120 \text{ m}^2 \quad \checkmark$$

$$\therefore \text{Total Area} = 12 + 120 = 132 \text{ m}^2 \quad \checkmark$$



6.

Area of Triangle:

$$A = \frac{1}{2} \cdot b \cdot h$$

$$= \frac{1}{2} \cdot 1.1 \cdot 4.8$$

$$= 2.64 \text{ cm}^2 \quad \checkmark$$

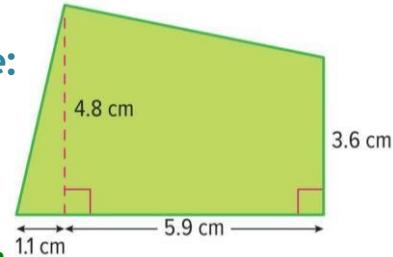
Area of Trapezoid:

$$A = \frac{1}{2} \cdot h \cdot (b_1 + b_2)$$

$$= \frac{1}{2} \cdot 5.9 \cdot (4.8 + 3.6)$$

$$= 24.78 \text{ cm}^2 \quad \checkmark$$

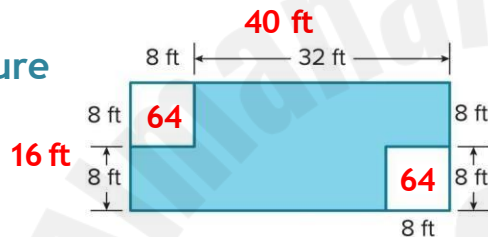
$$\therefore \text{T.A.} = 2.64 + 24.78 = 27.42 \text{ cm}^2 \quad \checkmark$$



7. Find the area of the shaded region.

Step 1: Area of the entire figure

$$\begin{aligned} A &= \ell \cdot w \\ &= (40) \cdot (16) \\ &= 640 \text{ ft}^2 \quad \checkmark \end{aligned}$$



Step 2: Area of two unshaded regions

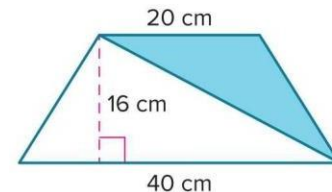
$$\begin{aligned} A &= 2 \cdot (s \cdot s) \\ &= 2 \cdot (8 \cdot 8) \\ &= 128 \text{ ft}^2 \quad \checkmark \end{aligned}$$

The area of the shaded region: $640 - 128 = 512 \text{ ft}^2$. ✓

8. Find the area of the shaded region.

Step 1: Area of the entire figure

$$\begin{aligned} A &= \frac{1}{2} \cdot h \cdot (b_1 + b_2) \\ &= \frac{1}{2} \cdot 16 \cdot (20 + 40) \\ &= 480 \text{ cm}^2 \quad \checkmark \end{aligned}$$



Step 2: Area of unshaded (Triangle)

$$\begin{aligned} A &= \frac{1}{2} \cdot b \cdot h \\ &= \frac{1}{2} \cdot 40 \cdot 16 \\ &= 320 \text{ cm}^2 \quad \checkmark \end{aligned}$$

The area of the shaded region: $480 - 320 = 160 \text{ cm}^2$. ✓

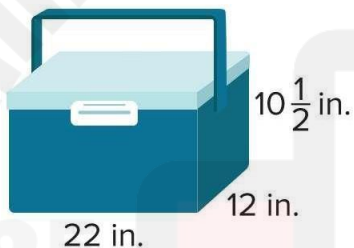
1. A cooler is in the shape of a rectangular prism. What is the volume of the cooler? Round to the nearest tenth if necessary.

$$\text{Volume} = B \cdot h$$

$$= (\ell \cdot w) \cdot h$$

$$= (22 \cdot 12) \cdot 10.5$$

$$= 2772 \text{ in}^3 \quad \checkmark$$



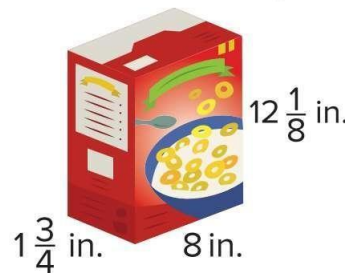
2. A cereal box is in the shape of a rectangular prism. What is the volume of the cereal box? Express your answer as a decimal rounded to the nearest tenth if necessary.

$$\text{Volume} = B \cdot h$$

$$= (\ell \cdot w) \cdot h$$

$$= (8 \cdot 1.75) \cdot 12.125$$

$$= 169.8 \text{ in}^3 \quad \checkmark$$



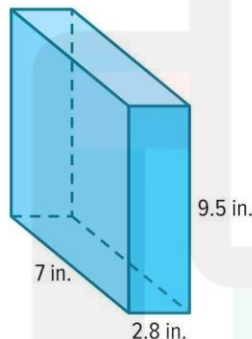
11. Sasha is mailing a photo box that has the dimensions shown in a rectangular box that is 12.5 inches long, 4.2 inches wide, and 12.5 inches tall. If one bag of packing material holds 75 cubic inches of material, how many bags does Sasha need to buy to fill the space around the photo box?

Photo Box

$$\begin{aligned} V &= B \cdot h \\ &= (\ell w) \cdot h \\ &= (7 \cdot 2.8) \cdot 9.5 \\ &= 186.2 \text{ in}^3 \quad \checkmark \end{aligned}$$

Rectangular Box

$$\begin{aligned} V &= B \cdot h \\ V &= (\ell w) \cdot h \\ V &= (12.5 \cdot 4.2) \cdot 12.5 \\ V &= 656.25 \text{ in}^3 \quad \checkmark \end{aligned}$$



Space around the photo box.

$$656.25 - 186.2 = 470.05 \quad \checkmark$$

Then, $470.05 \div 75 = 6.25$ \therefore She will need 7 bags \checkmark

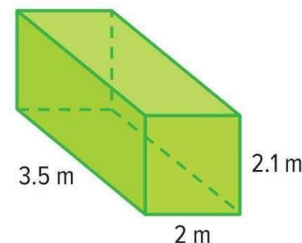
12. The cargo bed of a commercial truck is shaped like a rectangular prism. The dimensions are shown. Billy has 80 cubic meters of mulch to take to his house. How many trips will he have to make until all the mulch is at his house?

Volume of Truck

$$\begin{aligned} V &= B \cdot h \\ &= (\ell w) \cdot h \\ &= (3.5 \cdot 2) \cdot 2.1 \\ &= 14.7 \text{ m}^3 \quad \checkmark \end{aligned}$$

$$\text{Then, } 80 \div 14.7 = 5.44 \quad \checkmark$$

\therefore He will make 6 trips. \checkmark



7. A triangular prism has a height of 5.9 meters and volume of 86.376 cubic meters. What is the **area of the base** of the prism?

$$V = B \cdot h$$

$$B = V \div h \quad [\text{We are looking for "B"}]$$

$$B = 86.376 \div 5.9$$

$$B = 14.64 \text{ m}^3 \quad \checkmark$$

So, the area of the base of the prism is 14.64 m².

*Long Division (How to?) <https://bit.ly/4aBxNXI>

8. A rectangular pyramid has a height of 9.5 centimeters and a volume of 494 cubic centimeters. What is the **area of the base** of the pyramid?

$$V = \frac{1}{3} \cdot B \cdot h$$

$$B = V \div \left(\frac{1}{3} \cdot h\right) \quad [\text{We are looking for "B"}]$$

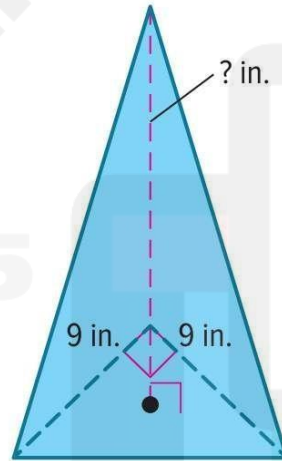
$$B = 494 \div \left(\frac{1}{3} \cdot 9.5\right)$$

$$B = 494 \div 3.167$$

$$B = 156 \text{ cm}^3 \quad \checkmark$$

9. A glass stand to display a doll is in the shape of a right triangular pyramid as shown. The volume of the stand is 202.5 cubic inches. What is the **height** of the stand?

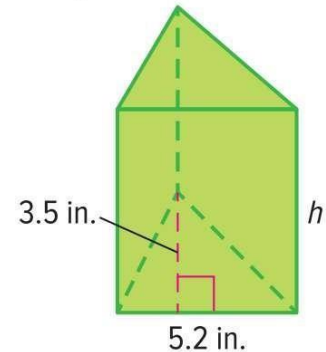
$$\begin{aligned}
 V &= \frac{1}{3} \cdot B \cdot h \\
 &= \frac{1}{3} \cdot \left(\frac{1}{2} \cdot b \cdot h \right) \cdot h \\
 &= \frac{1}{3} \cdot \left(\frac{1}{2} \cdot 9 \cdot 9 \right) \cdot h \\
 &= \frac{1}{3} \cdot (40.5) \cdot h \\
 &= 13.5 \cdot h
 \end{aligned}$$



Then, $h = V \div B = 202.5 \div 13.5 = 15 \text{ in.}$ ✓

10. A triangular box of sticky notes is shown. The volume of the box of sticky notes is 54.6 cubic inches. What is the **height** of the box of sticky notes?

$$\begin{aligned}
 V &= B \cdot h \\
 &= \left(\frac{1}{2} \cdot b \cdot h \right) \cdot h \\
 &= \left(\frac{1}{2} \cdot 5.2 \cdot 3.5 \right) \cdot h \\
 &= 9.1 \cdot h
 \end{aligned}$$



Then, $h = V \div B = 54.6 \div 9.1 = 6 \text{ in.}$ ✓

*Long Division (How to?) <https://bit.ly/3WYF4gX>

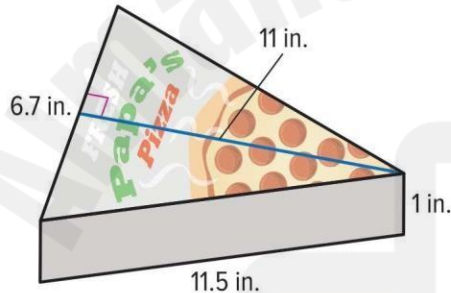
3. How much cardboard is needed to make the single slice of pizza box shown?

Area of 2 bases:

$$A = 2\left(\frac{1}{2} \cdot 6.7 \cdot 11\right)$$

$$A = 2(36.85)$$

$$A \approx 73.7 \text{ in}^2 \quad \checkmark$$



$$\text{Area of face 1} = \ell \cdot w = 6.7 \cdot 1 = 6.7 \text{ in}^2$$

$$\text{Area of face 2} = \ell \cdot w = 11.5 \cdot 1 = 11.5 \text{ in}^2 \quad \checkmark$$

$$\text{Area of face 3} = \ell \cdot w = 11.5 \cdot 1 = 11.5 \text{ in}^2$$

$$\text{T.S.A} = 73.7 + 6.7 + 11.5 + 11.5 \approx 103.4 \text{ in}^2 \quad \checkmark$$

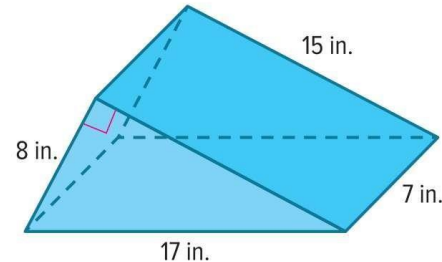
4. What is the surface area of the triangular prism-shaped toy car ramp shown?

Area of 2 bases:

$$A = 2\left(\frac{1}{2} \cdot 8 \cdot 15\right)$$

$$A = 2(60)$$

$$A = 120 \text{ in}^2 \quad \checkmark$$



$$\text{Area of face 1} = \ell \cdot w = 8 \cdot 7 = 56 \text{ in}^2$$

$$\text{Area of face 2} = \ell \cdot w = 17 \cdot 7 = 119 \text{ in}^2 \quad \checkmark$$

$$\text{Area of face 3} = \ell \cdot w = 15 \cdot 7 = 105 \text{ in}^2$$

$$\text{T.S.A} = 120 + 56 + 119 + 105 = 400 \text{ in}^2 \quad \checkmark$$

8. Jake wants to buy the foam gymnastic block shown. If the foam used to make the gymnastic block costs \$24.99 per cubic foot, what is the cost of this block, to the nearest dollar?

Convert $1\frac{1}{3}$ ft and $\frac{5}{6}$ ft to inches. There are 12 inches in 1 foot.

$$1\frac{1}{3} \text{ ft} \times 12 = 20 \text{ in.}$$

$$\frac{5}{6} \text{ ft} \times 12 = 10 \text{ in.}$$

The figure is composed of two rectangular prisms. Find the volume each prism.

Rectangular Prism 1

$$\begin{aligned} V &= B \cdot h \\ &= (\ell \cdot w) \cdot h \\ &= (16 \cdot 24) \cdot 20 \\ &= 7680 \text{ in}^3 \checkmark \end{aligned}$$

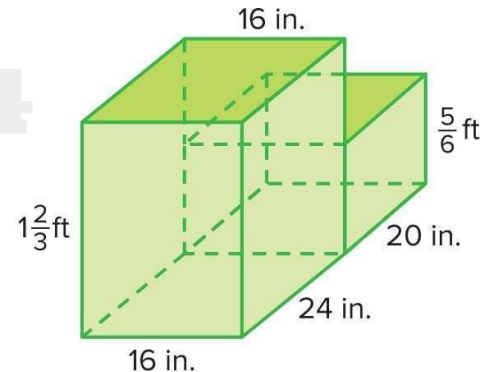
Rectangular Prism 2

$$\begin{aligned} V &= B \cdot h \\ &= (\ell \cdot w) \cdot h \\ &= (16 \cdot 20) \cdot 10 \\ &= 3200 \text{ in}^3 \checkmark \end{aligned}$$

$$\text{Total volume} = 7680 + 3200 = 10880 \text{ in}^3 \checkmark$$

$$\text{Convert } 10880 \text{ in}^3 \text{ to ft}^3. \text{ Note: } 1728 \text{ in}^3 = 1 \text{ ft}^3. \quad \therefore 10880 \div 1728 \approx 6.3 \text{ ft}^3$$

$$\text{So, the total cost is } \$24.99 \times 6.3 = \$157 \checkmark$$



1. A spinner with four equal sections of blue, green, yellow, and red is spun 100 times. It lands on blue 14 times, green 10 times, yellow 8 times, and red 68 times. **What is the relative frequency of landing on red? green?**

What are you looking for ?

$$\text{Relative Frequency} = \frac{\text{Number of favourable outcomes}}{\text{Total number of outcomes}}$$

$$\text{Relative Frequency of rolling a red} = \frac{68}{100} = \frac{17}{25} \text{ or } 68\% \text{ or } 0.68 \quad \checkmark$$

$$\text{Relative Frequency of rolling a green} = \frac{10}{100} = \frac{1}{10} \text{ or } 10\% \text{ or } 0.10 \quad \checkmark$$

2. The frequency table shows the results of a survey about favorite exhibits. **Find the relative frequency that a randomly selected student's favorite exhibit was either butterflies or trains, as a percent.**

Find the total number of students surveyed.

$$12 + 25 + 17 + 6 = 60 \text{ students} \quad \checkmark$$

$$\text{Butterflies or trains: } 12 + 6 = 18 \text{ students} \quad \checkmark$$

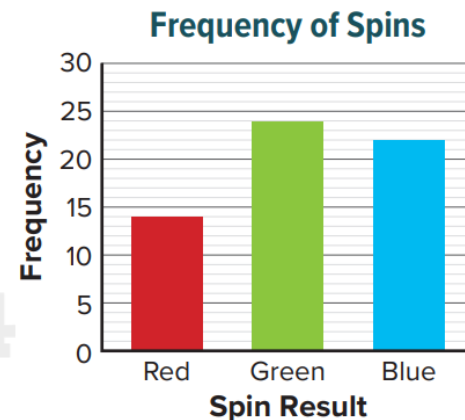
$$\begin{aligned} \text{Relative Frequency} &= \frac{18}{60} \\ &= \frac{3}{10} \text{ or } 30\% \text{ or } 0.3 \quad \checkmark \end{aligned}$$

Exhibit	Frequency
Butterfly	12
Dinosaurs	25
Planets	17
Trains	6

Ex3 The graph shows the results of an experiment in which a spinner with three equal-size sections is spun a number of times. **Find the relative frequency of spinning green or blue for this experiment. Express the ratio as a fraction.**

Step 1: Total number of spins = $14 + 24 + 22 = 60$ ✓

Step 2: Relative frequency = $\frac{\text{number of green or blue spins}}{\text{total number of spins}}$
 $= \frac{24 + 22}{60}$
 $= \frac{46}{60}$ or $\frac{23}{30}$ or 0.767 or 76.7 % ✓



3. The graph shows the results of an experiment in which a number cube labeled 1 through 6 is rolled a number of times. **Find the relative frequency of rolling a number greater than 3.**

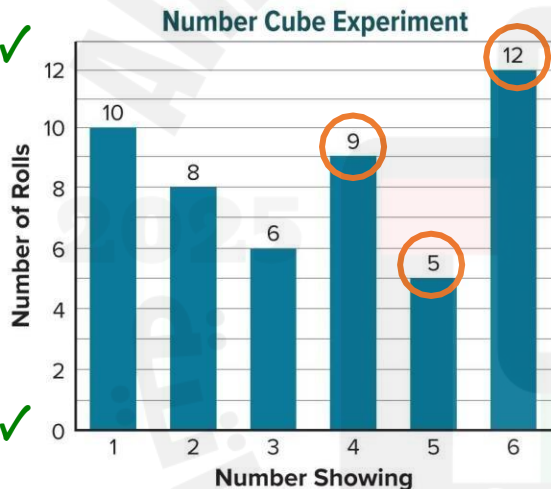
Find the total number of rolls: ✓
 $10 + 8 + 6 + 9 + 5 + 12 = 50$ rolls

Find how many rolls that were greater than 3.

$9 + 5 + 12 = 26$ rolls ✓

$\frac{\text{number of rolls of 4, 5 and 6}}{\text{total number of rolls}}$

$= \frac{26}{50}$ or $\frac{13}{25}$ or 0.52 or 52% ✓

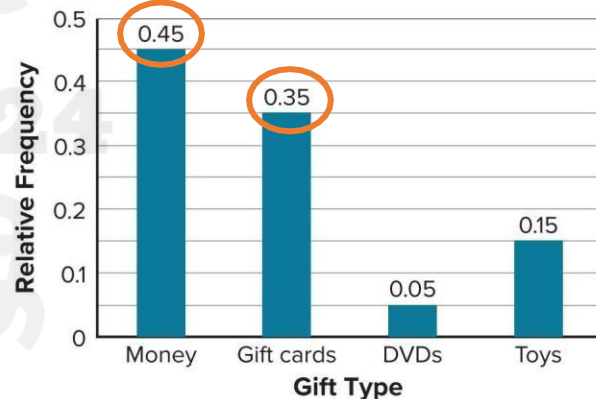


4. A random selection of students was asked the question “What type of gift did you last receive?” and the results were recorded in the relative frequency bar graph. **What is the experimental probability that a student chosen at random received a gift card or money?**

Relative frequency of a gift card or money:

$0.35 + 0.45 = 0.80$ ✓

0.80, 80% or $\frac{4}{5}$



5. Based on previous orders, the manager of an ice cream shop determines the probability that a customer will order chocolate sauce is 85%. If there are 240 sundaes ordered in one weekend, **how many sundaes are expected to be ordered with chocolate sauce?**

$$\begin{array}{ccc} \checkmark & \times 2.4 \checkmark & \\ \boxed{\frac{85}{100}} & \xrightarrow{\quad} & \boxed{\frac{s}{240}} \\ & = & \\ & \xleftarrow{\quad} & \\ & \times 2.4 & \end{array}$$

$$s = 85 \times 2.4 = 204 \quad \text{or} \quad s = 0.85 \times 240 = 204$$

So, 204 sundaes are expected to be ordered with chocolate sauce. ✓

Ex3 Rafael is going to ride a roller coaster chosen at random and wants to find the probability of choosing a roller coaster with a height less than 250 feet. **What is the probability of the complement (متمم) of the event (طيسلا ثحاح)?**

Step 1:

$P(\text{less than 250 ft}) = \frac{3}{8}$ or 37.5% or 0.375 ✓

How many roller coasters with a height not less than 250 ft?

Step 2: Find the complement of the event.

$P(\text{not less than 250 ft}) = \frac{5}{8}$ or 62.5% or 0.625 ✓



Roller coasters with a height > 250 ft

Roller Coaster	Height (ft)
Thunder Dragon	345
Screamin' Spyder	410
Zipster	185
Maniac	230
Flying Eagle	255
Twister Wave	277
Triple Tornado	455
Ultra Loop	196

Check the sum:

$$\frac{3}{8} + \frac{5}{8} = \frac{8}{8} = 1$$

1. The spinner shown is spun once. What is the sample space?



The sample space (ناتج الحظ) is 1,2,3,4,5 ✓

2. Each letter in the word **MISSISSIPPI** is written on a piece of paper and placed into a bag. A letter is drawn at random. What is the sample space?

The sample space (ناتج الحظ) is M, I, S, P ✓



3. A teacher placed the letter cards **E, L, O, R, U**, and **W** in a bag. A card is drawn at random. Determine the theoretical probability for drawing a card that has a vowel on it.

$$P(\text{vowel}) = \frac{3}{6} = \frac{1}{2} \text{ or } 0.5 \text{ or } 50\% \quad \checkmark$$

4. A player in a board game rolls a six-sided number cube labeled 1 through 6 once. Determine the theoretical probability of rolling a 1 or 2.

$$P(1 \text{ or } 2) = \frac{2}{6} = \frac{1}{3} \text{ or } 0.3 \text{ or } 33\frac{1}{3}\% \quad \checkmark$$



5. The table shows the lengths of time for rides at a fair. Zane will choose a ride at random and wants to find the probability of choosing a ride that lasts less than 200 seconds. **What is the probability of the complement of the event? Describe the complement.**

$P(\text{not less than 200 secs}) = \frac{3}{8}$ ✓

37.5% or 0.375

The complement is choosing a ride that lasts at least 200 seconds.

Ride	Time(seconds)
Barrel	150
Bumper Cars	195
Circus Carousel	210
Log Ride	120
Roller Coaster	55
Swings	225
Train	300
Zero Gravity Spinner	65

6. Red is spun on a spinner with five equal-size sections labeled red, yellow, blue, green, and purple. **What is the probability of the complement of the event? Describe the complement.**

$P(\text{not red}) = \frac{4}{5}$ or 0.8 or 80% ✓

The complement is spinning yellow, blue, green, or purple.

7. A sportscaster predicted that the local high school baseball team has a 75% chance of winning tonight. Select all of the values that represent the probability of the team not winning.

☐ 0.75

☒ 25%

☒ 0.

25

☐ 75%

☐ 3

☒ -

8. A pet store is having a prize give-away. The spinner shows the type of toy a customer can win for their pet. If a customer spins the spinner and it lands on cat, they will win a free cat toy. If the spinner is spun 540 times throughout the day, about how many dog or cat toys are expected to be given away?

Find the theoretical probability of spinning dog or cat.

Cat + dog = 5 + 2 = 7 ✓

P (dog or cat) = $\frac{7}{10}$ or 0.7 or 70% ✓

$\frac{7}{10} = \frac{x}{540}$ So, $x = 7 \times (540 \div 10) = 378$ ✓

∴ About 378 dogs or cat toys will be given out.



9. The letters from the word **FOOTBALL** are written on 8 cards with one letter on each card. One card will be drawn randomly and then placed back into the stack. If this experiment is repeated 840 times, about how many times should you expect to draw a consonant?

Find the theoretical probability of selecting a consonant.

Select consonant:

F	O	O	T	B	A	L	L
---	---	---	---	---	---	---	---

$$P(\text{choosing a consonant}) = \frac{\text{Number of consonants}}{\text{Number of letters}} = \frac{5}{8} \text{ or } 0.625 \text{ or } 62.5\% \checkmark$$

$$\frac{5}{8} = \frac{x}{840} \quad \text{So, } x = 5 \times (840 \div 8) = 525 \quad \checkmark$$

\therefore About 525 consonants will be drawn.

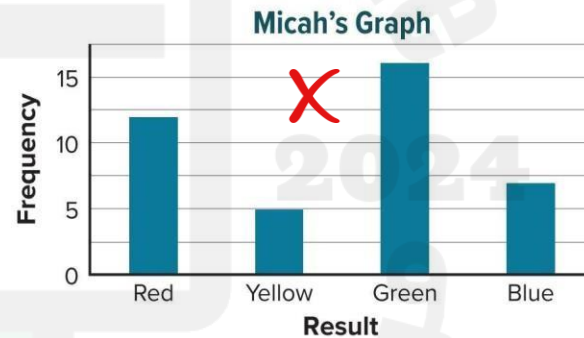
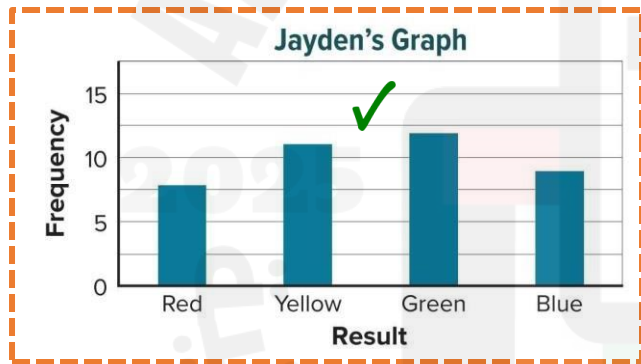
10. Describe a real-world situation that involves a sample space. Then describe the sample space.

A teacher wrote each letter in the word **BASEBALL** on a piece of paper and placed the letters into a bag.



What is the sample space?; B, A, S, E, L

1. Jayden spins a spinner with four equal-size sections labeled red, yellow, green, and blue, 40 times. Micah randomly selects one marble from a bag that contains an equal number each of red, yellow, green, and blue marbles. He replaces the marble and selects again. Micah repeats this experiment 40 times. Each student records their results in a frequency bar graph. Which student's graph best represents the results that can be expected from each experiment?



Jayden's graph has results that are more evenly distributed across each possible outcome. ✓

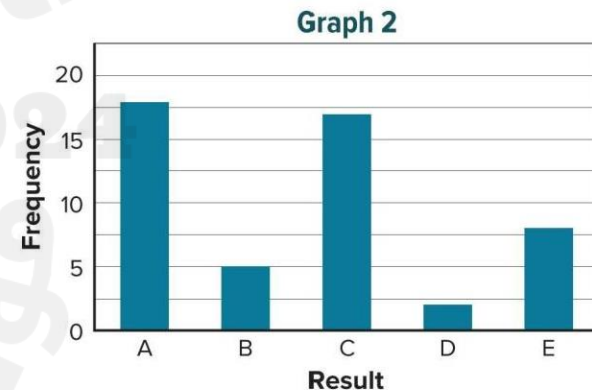
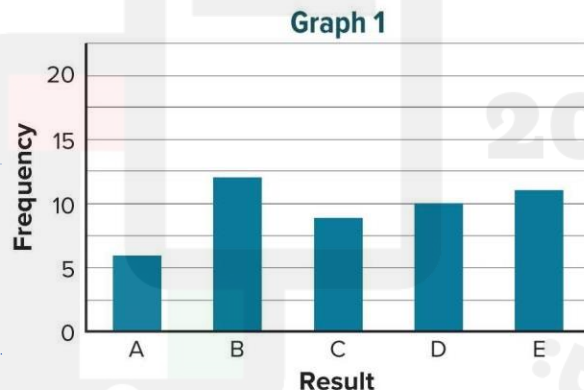
2. Two experiments are conducted and their results are recorded in frequency bar graphs.

Experiment 1	Experiment 2
A spinner with equal-size sections of A, B, C, D, and E is spun 50 times.	A card is randomly selected from a bag containing five A cards, three B cards, four C cards, one D card, and two E cards. The card is then placed back in the bag. There are 50 trials.

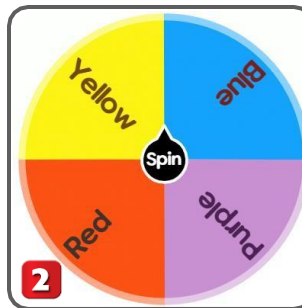
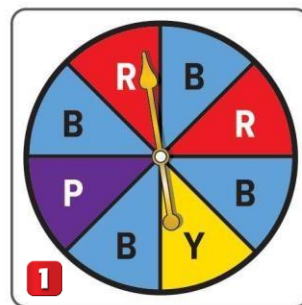
Which graph best represents the results that can be expected from:

Experiment 1? **Graph 1** ✓

Experiment 2? **Graph 2** ✓



3. Suppose the spinner shown is spun 80 times. Another spinner with four equal-size sections labeled red, blue, yellow, and purple is spun 80 times. The results are recorded in the following frequency bar graphs. Which graph best represents the results that can be expected from the first spinner? the second spinner?

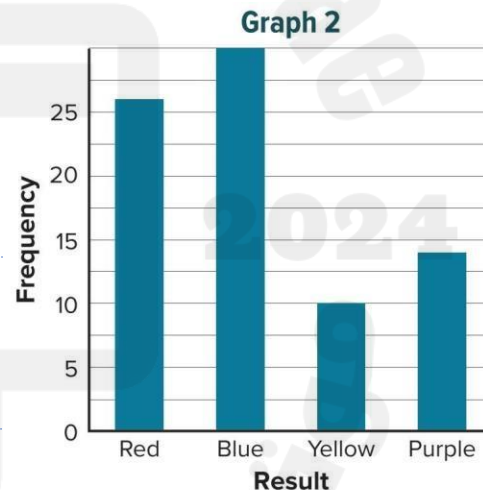
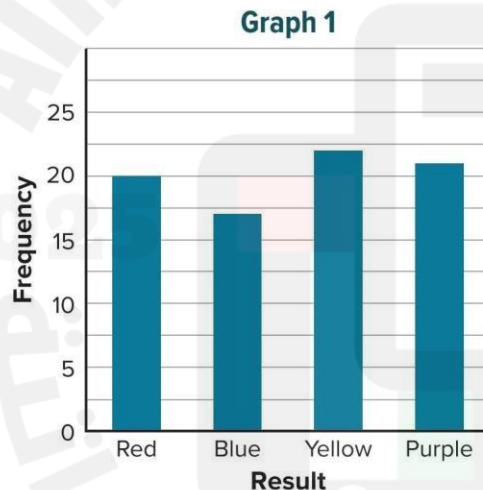


First spinner?

Graph 2 ✓

Second spinner?

Graph 1 ✓



1. A school librarian is purchasing new books for her book clubs in the coming year. In order to determine how many books she needs, she randomly surveys 25 students who plan to participate in one of her book clubs in the coming year. The table shows the results.

Predict how many science fiction books she will need to purchase if 125 students participate in book club next year.

$$\begin{array}{c} \checkmark \\ \boxed{\frac{6}{25}} \end{array} \begin{array}{c} \times 5 \checkmark \\ \curvearrowright \\ = \\ \curvearrowleft \\ \times 5 \end{array} \begin{array}{c} \boxed{\frac{b}{125}} \end{array}$$

$$b = 6 \times 5 = 30 \checkmark$$

or

$$b = 6 \times (125 \div 25) = 30$$

The school librarian should buy 30 science fiction books. \checkmark

Book Club Type	Number of Students
Autobiography	2
Graphic Novel	7
Mystery	10
Science Fiction	6
Add.	
	<u>25</u>

2. A smart tablet manufacturer tests 1 out of every 25 screens for flaws. Out of 125 tablets tested, 2 had defective screens. **How many defective screens should the manufacturer expect out of 45,000 smart tablets?**

$$\frac{2}{125} = \frac{d}{45000}$$

Diagram showing the proportion: $\frac{2}{125} = \frac{d}{45000}$. The left fraction has a green checkmark above the numerator 2. The right fraction has a green checkmark above the denominator 45000. Blue arrows indicate cross-multiplication: one arrow from 2 to 45000 labeled $\times 360$ with a green checkmark, and another from 125 to d labeled $\times 360$.

$$\therefore d = 2 \times 360 = 720$$

The manufacturer should expect 720 tablets to be defected.

3. The superintendent of a school district wants to predict next year's middle school lunch count. The graph shows the results of a survey of randomly selected middle school students. If the district has 5,000 middle school students next year, **about how many students plan to buy lunch 1-2 days a week?**

$$\frac{37}{100} = \frac{n}{5000}$$

Diagram showing the proportion: $\frac{37}{100} = \frac{n}{5000}$. The left fraction has a green checkmark above the numerator 37. The right fraction has a green checkmark above the denominator 5000. Blue arrows indicate cross-multiplication: one arrow from 37 to 5000 labeled $\times 50$ with a green checkmark, and another from 100 to n labeled $\times 50$.

$$\therefore n = 37 \times 50 = 1850$$

So, about 1,850 students.

How Many Days Will You Buy Lunch?



4. The guidance department conducted a random survey of the student body and found that 16% of the students plan to volunteer at the school festival. **Predict how many volunteer positions they should plan for a population of 950 students.**

$$\begin{array}{ccc} \checkmark & \times 9.5 \checkmark & \\ \boxed{\frac{16}{100}} & = & \boxed{\frac{p}{950}} \\ & \times 9.5 & \end{array}$$

$$p = 16 \times (950 \div 100) \\ = 152$$

$$\therefore p = 16 \times 9.5 = 152 \checkmark$$

So, about 152 positions.

5. The owner of a travel agency randomly surveyed its customers. The survey showed that 55% of the agency's customers were planning an overseas vacation the following year. **Predict how many of the travel agency's 12,400 travelers will vacation overseas the following year.**

$$\begin{array}{ccc} \checkmark & \times 124 \checkmark & \\ \boxed{\frac{55}{100}} & = & \boxed{\frac{C}{12400}} \\ & \times 124 & \end{array}$$

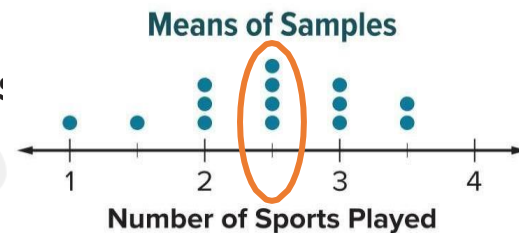
$$C = 55 \times (12400 \div 100) \\ = 6820$$

$$\therefore C = 55 \times 124 = 6820 \checkmark$$

So, about 6820 customers.

1. The dot plot displays data from 14 random samples, each consisting of 30 middle school students. Each dot represents the mean number of sports played per year by students in the sample.

- a. Which number best represents the **mean number** (بسيطاً متوسطاً) of sport played by middle school students?



The sample means pile up between 2 and 3 sports. So, the mean of the population should be close to **2.5 sports**. ✓

- b. Find and interpret the variability in the distribution.

$$\begin{aligned} \text{MAD} &= \frac{1.5 + 1 + 3(0.5) + 4(0) + 3(0.5) + 2(1)}{14} \\ &= \frac{7.5}{14} \approx 0.54 \checkmark \end{aligned}$$

*Most of the sample means are close to the true mean, within **0.5 sport**. This means our estimate of the true mean is likely very close. ✓

2. Below are two dot plots containing sample means from the same population.

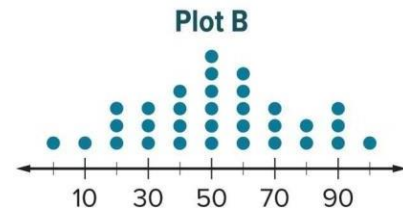
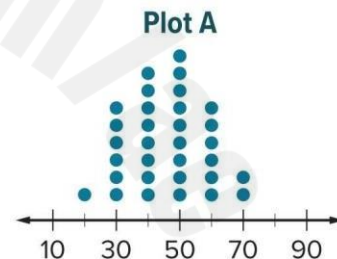
A. How many samples are represented in each plot?

How do you know?

Count the number dots in each plot. There are 32 samples in both Plot A and B. ✓

32 samples

32 samples



B. Which dot plot has higher variability? Defend your answer.

Plot B. The data values in Plot B are more spread out than in Plot A.

Range of B > Range A. i.e., Range = Max value – Min value. ✓

C. One plot contains samples of size 25, and the other plot contains samples of size 60.

Which dot plot contains the samples of size 60? How do you know?

Plot A. The dots are closer together, showing less variability. When you have a larger sample size, your results tend to be more consistent. ✓

Ex1 The dot plot shows the means of 24 random samples of 20 runners' times, across local high schools, for a one-mile race. Each dot represents the mean of one random sample.

Which race time is the best estimate of the population mean?

$$\begin{aligned}\text{Sample mean} &= \frac{5 + 3(5.5) + 5(6) + 4(6.5) + 5(7) + 3(7.5) + 8 + 2(8.5)}{24} \\ &= \frac{160}{24} \approx 6.7 \checkmark\end{aligned}$$

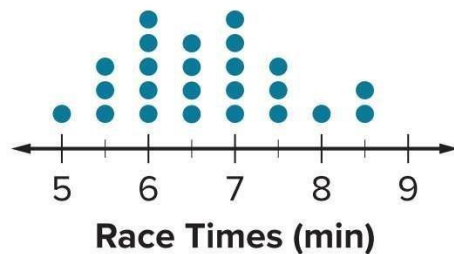
Find and interpret the variability in the distribution.

$$\begin{aligned}\text{MAD} &= \frac{1.7 + 3(1.2) + 5(0.7) + 4(0.2) + 5(0.3) + 3(0.8) + 1.3 + 2(1.8)}{24} \\ &= \frac{18.4}{24} \approx 0.8 \checkmark\end{aligned}$$

\therefore Has relatively low variability. The estimate 6.7 is close to true mean.

Deviation Value – mean
$5 - 6.7 = 1.7$
$5.5 - 6.7 = 1.2$
$6 - 6.7 = 0.7$
$6.5 - 6.7 = 0.2$
$7 - 6.7 = 0.3$
$7.5 - 6.7 = 0.8$
$8 - 6.7 = 1.3$
$8.5 - 6.7 = 1.8$

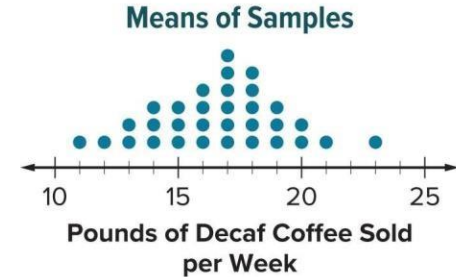
Means of Samples



3. A large company is trying to determine the mean number of pounds of decaf coffee sold per week in its stores. The dot plot shows the mean pounds of decaf coffee sold per week from 32 samples of 50 stores each.

a. Describe the variability of the dot plot.

Most of the data values are grouped (close together) between 14 and 19 pounds. ✓



b. How might the dot plot be different if each of the 32 samples contained data from 200 stores?

The data would be more tightly grouped between 15 and 18 pounds. ✓

3.

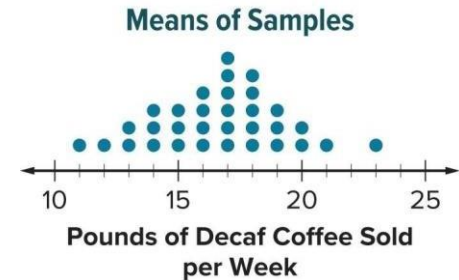
- c. The company randomly samples 50 of its stores and records the pounds of decaf sold per week for each store. A mean sale of 18 pounds of decaf coffee per week is calculated from this sample. Based on the sample mean of 18 and the variability observed in the dot plot, what range of values could be used to describe the population mean?

Most of the data appear to be within 3 pounds of the center (mean). Therefore, the company can expect the sample mean of 18 pounds to be within 3 pounds of the population mean.

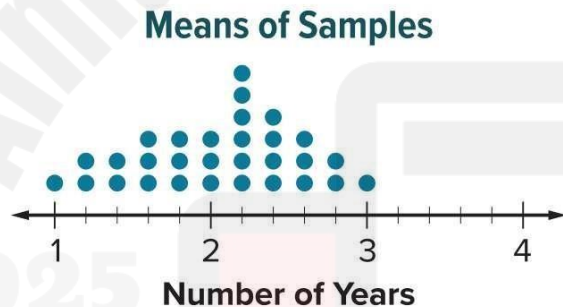
The mean decaf sales for stores in this company is likely to be between 15 and 21 pounds per week. ✓

- d. The company samples 200 stores and finds a mean of 17 pounds of decaf coffee sold per week. Based on your answer to Part B, what range of values might describe the mean for all stores in the company? Justify your answer.

Due to the increased sample size, the sample means will be more consistent (i.e. reliable) and closer to the population mean. The store might expect to sell between 16 and 18 pounds of decaf coffee. ✓



4. Find the Error A student examines the dot plot below and states that it contains samples of size 30. Find the student's mistake and correct it.



The student confused the number of samples with the sample size. There are **30 samples**. ✓

The size of the samples cannot be determined from the dot plot.

5. Draw a dot plot with low variability. Write an argument to support why your dot plot has low variability.

$$\text{Mean} = \frac{130}{13} \text{ or } 10$$

Find the MAD.

$$\text{MAD} = \frac{40}{13} \approx 3$$

The MAD is about 3, which means that the average distance each data value is from the mean is 3.

