Pre-Calculus 10 Name: KEY

1.1-1.3 Measurement Review

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

d 1. Which SI unit is most appropriate for measuring the distance between your school and the nearest airport?

a. Centimetres b. Metres c. Millimetres (d.) Kilometres

C 2. Which SI unit is most appropriate for measuring the diameter of a marble?

a. Metres b. Kilometres (c.) Millimetres d. Centimetres

b 3. Which imperial unit is most appropriate for measuring the width of a snowboard?

a. Miles (b.) Inches c. Feet d. Yards

C 4. Which imperial unit is most appropriate for measuring the distance between the nearest lake and the nearest mountain peak?

a. Feet b. Inches (c.) Miles d. Yards

b 5. An indoor lacrosse goal is 4 ft. high. What is this measurement to the nearest tenth of a metre?

a. 1.3 m (b.) 1.2 m c. 13.3 m d. 12.0 m

$$4\text{ft} \times 0.305\,\text{m}/\text{ft} = 1.22\,\frac{\text{m}\cdot\text{ft}}{\text{ft}} = 1.2\,\text{m}$$

e 6. A penalty box on a soccer field measures 44 yd. by 18 yd. What are these dimensions to the nearest tenth of a metre?

a. 39.6 m by 16.2 m
c. 39.6 m by 17.6 m
b. 47.7 m by 16.2 m
d. 47.7 m by 17.6 m

$44\ yd \times 0.914\ m/yd = 40.2\ yd \cdot m / yd = 40.2\ m$

$18\ yd \times 0.914\ m/yd = 16.5\ yd \cdot m / yd = 16.5\ m$

(e) 40.2 m by 16.5 m

e 7. Convert 3180 m to yards and the nearest foot.

a. 1060 yd. 0 ft.
b. 2935 yd. 1 ft.
c. 3445 yd. 0 ft.
d. 815 yd. 1 ft.

$3180\ m \times 1.094\ yd/m = 3478.92\ yd$

$\therefore .92\ yd \times 3\ ft/yd = 2.76\ ft$

(e) 3478 yd 3 ft

C 8. Convert 1732 yd. to the nearest tenth of a kilometre.

a. 155.9 km
b. 1558.8 km
(c.) 1.6 km
d. 15.6 km

$1732\ yd \times 0.914\ m/yd = 1583\ m$

$1583\ m \div 1000\ m/km = 1.583\ m \cdot km / m = 1.6\ km$

e 9. Quentin is 5 ft. 1 in. tall. What is his height to the nearest centimetre?

a. 148 cm
b. 163 cm
c. 153 cm
d. 151 cm

$5\ ft \times 30.5\ cm/ft = 152.5\ cm$

$1\ in \times 2.54\ cm/in = 2.54\ cm$

(e) 155 cm

a 10. The Queen's Plate is a thoroughbred horse race for 3-year-old Canadian-bred horses. The race is $1\frac{1}{4}$ mi. in length. What is this distance in kilometres?

(a.) 2 km b. 1.7 km c. 0.78 km d. 1.28 km

$1\frac{1}{4}$ mi = 1.25 mi

$1.25 \text{ mi} \times 1.609 \text{ km/mi} = \boxed{2.01 \text{ km}}$

a 11. A thin strip of wood laminate is to be glued to the edges of a table. The length of laminate required is equal to the perimeter of the table, which has dimensions 175 cm by 110 cm. The laminate is sold in 8-ft. lengths. How much laminate must be purchased?

(a.) 24 ft. b. 32 ft. c. 16 ft. d. 8 ft.

length required = $175 \text{ cm} \times 2 + 110 \text{ cm} \times 2 = 570 \text{ cm}$

$570 \text{ cm} \times 0.394 \text{ in/cm} = 224.58 \text{ in} \longrightarrow 224.58 \text{ in} \div 12 \text{ in/ft} = 18.715 \text{ ft.}$

Since I need 18.7 ft of laminate, I must purchase 3 eight foot lengths = $\boxed{24 \text{ ft}}$

C 12. The cliff at Head-Smashed-In Buffalo Jump in southwestern Alberta is about 10 m high. What is this height to the nearest foot?

a. 36 ft. b. 35 ft. (c.) 33 ft. d. 30 ft.

$10 \text{ m} \times 3.280 \text{ ft/m} = \boxed{32.8 \text{ ft}}$

Short Answer

13. Convert 3 ft. 9 in. to inches.

$3\text{ft} \times 12\text{ in/ft} = 36\text{ in.}$

$36\text{ in} + 9\text{ in} = \boxed{45\text{ in}}$

14. Convert 352 in. to yards, feet, and inches.

$352\text{ in} \div 36\text{ in/yd} = 9.77\text{ yd.}$

$.77\text{yd} \times 3\text{ ft/yd} = 2.33\text{ ft}$

$.33\text{ft} \times 12\text{ in/ft} = 4\text{ in.}$

$\boxed{9\text{ yds } 2\text{ ft } 4\text{ in}}$

15. Convert 2 miles to:
    a) yards

$2\text{mi} \times 1760\text{ yd/mi} = \boxed{3520\text{ yd}}$

    b) feet $2\text{mi} \times 5280\text{ ft/mi} = \boxed{10560\text{ ft}}$

    c) inches $10560\text{ft} \times 12\text{ in/ft} = \boxed{126720\text{ in}}$

16. A cruise ship is 790 ft. long. Convert this length to the nearest metre.

$790\,ft \times 0.305\,m/ft. = 240.95\,m$

$= 241\,m$

17. On a map of British Columbia, the distance between Vancouver and Squamish is 52 km. Convert this distance to the nearest mile.

$52\,km \div 1.609\,km/mi = 32.3.\,mi$

$= 32\,mi$

18. A killer whale is 8.5 m long. Convert this length to feet and the nearest inch.

$8.5\,m \times 3.28\,ft/m = 27.88\,ft$

$.88\,ft \times 12\,in/ft = 10.56\,in \longrightarrow 11\,in$

$\therefore$ length = 27 ft. 11 in.

Problem

19. Convert 22 yd. to feet. Use unit analysis to verify the conversion.

$22\,yd \times 3\,ft/yd = 66\,\frac{yd \cdot ft}{yd.} = 66ft.$

20. Sheila plans to place crown moulding along the top of each wall in her family room. A total of 563 in. of moulding is required. The moulding costs $1.54/ft. and is sold in 8-ft. lengths. What is the cost of the crown moulding, before taxes?

① $563\text{ in} \div 12\text{ in/ft} = 46.917\text{ ft}$

② $46.917\text{ ft} \div 8\text{ ft/length} = 5.86\text{ lengths}$

∴ SHEILA NEEDS TO GET 6 - 8ft LENGTHS = 48ft

③ $48\text{ ft} \times \$1.54/\text{ft} = \boxed{\$73.92}$

21. A nautical mile is approximately 6080 ft. Convert 6 nautical miles to the nearest tenth of a kilometre.

$6080\text{ft} \times 0.305\text{ m/ft} = 1854.4\text{ m}$

$= 1.8544\text{ km}$ This equal 1 nautical mile

6 nautical miles = $6 \times 1.8544\text{ km} = 11.13\text{ km} = \boxed{11.1\text{ km}}$

22. A hardware store sells nylon rope for $0.89/yd. A lumber yard sells the same rope for $0.94/m.
    a) Which store sells the rope for a lower price? Explain your answer. LUMBER YARD IS CHEAPER
    b) How much money would Jim save if he purchased 550 ft. of the less expensive rope, before taxes?

$550\text{ ft} \div 3\text{ ft/yd} = 183.33\text{ yd}.$

LUMBER YARD

$\$0.94/\text{m}$

but, $1\text{m} = 1.094\text{ yd}$

∴ the price is $\$0.94/1.094\text{yd} = \$0.86/\text{yd}$

$183.33\text{yd} \times \$0.89/\text{yd} = \$163.17$

$183.33\text{yd} \times \$0.86/\text{yd} = \$157.67$

$\boxed{\$5.50 \text{ savings}}$