

TT 1. Foundations and Pre-calculus Mathematics 10 (Pearson) Possible Solutions

- a. *Foundations and Pre-calculus Mathematics 10* (Pearson), questions 7, 8, 11 and 18 on pages 11 and 12

7. a) There are 12 inches in 1 ft. So, $3 \text{ ft} \times \frac{12 \text{ in}}{1 \text{ ft}} = 36 \text{ in}.$

b) There are 3 ft in 1 yd. So, $63 \text{ yd} \times \frac{3 \text{ ft}}{1 \text{ yd}} = 189 \text{ ft}.$

c) There are 12 inches in 1 ft. So, $48 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}} = 4 \text{ ft}.$

8. a) There are 5280 ft in 1 mi, and 12 inches in 1 ft. So, $2 \text{ mi} \times \frac{5280 \text{ ft}}{1 \text{ mi}} = 10\,560 \text{ ft}.$

b) There are 12 inches in 1 ft. So, $574 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}} = \frac{574}{12} \text{ ft} = 47 \frac{10}{12} \text{ ft} = 47 \text{ ft } 10 \text{ in}.$

Since there are 3 ft in every yard, the following is true:

$$47 \text{ ft} \times \frac{1 \text{ yd}}{3 \text{ ft}} + 10 \text{ in} = \frac{47}{3} \text{ yd} + 10 \text{ in} = 15 \frac{2}{3} \text{ yd} + 10 \text{ in} = 15 \text{ yd } 2 \text{ ft } 10 \text{ in}$$

c) There are 3 ft in 1 yd. So, $7390 \text{ ft} \times \frac{1 \text{ yd}}{3 \text{ ft}} = \frac{7390}{3} \text{ yd} = 2463 \frac{1}{3} \text{ yd} = 2463 \text{ yd } 1 \text{ ft}.$

Since there are 1760 yd in every mile, the following is true:

$$2463 \text{ yd} \times \frac{1 \text{ mi}}{1760 \text{ yd}} + 1 \text{ ft} = \frac{2463}{1760} \text{ mi} + 1 \text{ ft} = 1 \frac{703}{1760} \text{ mi} + 1 \text{ ft} = 1 \text{ mi } 703 \text{ yd } 1 \text{ ft}$$

11. a) Since $1 \text{ yd} = 3 \text{ ft}$, $10 \text{ yd} = 10(3) = 30 \text{ ft}.$

Since $1 \text{ ft} = 12 \text{ in}$, $30 \text{ ft} = 30(12 \text{ in}) = 360 \text{ in}.$

If David is cutting this into 15 in strips, then he can make $\frac{360}{15} = 24$ mats.

b) There are 3 ft in 1 yd and 12 inches in 1 ft. So, $10 \text{ yd} \times \frac{3 \text{ ft}}{1 \text{ yd}} \times \frac{12 \text{ in}}{1 \text{ ft}} = 360 \text{ in}.$ If David is cutting this into 15 in strips; then he can make $\frac{360}{15} = 24$ mats.

18. The sidewalk measures 18 ft.

$$18 \text{ ft} \times \frac{12 \text{ in}}{1 \text{ ft}} = 216 \text{ in}$$

If it is recommended that the tulips are planted 8 in apart, then $\frac{216}{8} = 27$ tulips are needed. However, one additional tulip will be needed at the start, so 28 tulips will be needed in all.

b. i. $215 \text{ mm} = 215 \text{ mm} \times \frac{1 \text{ cm}}{10 \text{ mm}} = 21.5 \text{ cm}$

ii. $7960 \text{ m} = 7960 \text{ m} \times \frac{1 \text{ km}}{1000 \text{ m}} = 7.96 \text{ km}$

iii. $1.33 \text{ km} = 1.33 \text{ km} \times \frac{1000 \text{ m}}{1 \text{ km}} \times \frac{100 \text{ cm}}{1 \text{ m}} = 133\,000 \text{ cm}$

c. The perimeter in centimetres is $102 \text{ cm} + 55 \text{ cm} + 102 \text{ cm} + 55 \text{ cm} = 314 \text{ cm}$. The perimeter in metres is $314 \text{ cm} = 314 \text{ cm} \times \frac{1 \text{ m}}{100 \text{ cm}} = 3.1 \text{ m}$.