

29E

$$1) \frac{27 \cancel{\text{ft.}^2}}{1} \times \frac{1 \text{ yd.}}{3 \cancel{\text{ft.}}} \times \frac{1 \text{ yd.}}{3 \cancel{\text{ft.}}} = 3 \text{ yds.}^2$$

$$2) \frac{3 \cancel{\text{yd.}^2}}{1} \times \frac{3 \text{ ft.}}{1 \cancel{\text{yd.}}} \times \frac{3 \text{ ft.}}{1 \cancel{\text{yd.}}} = 27 \text{ ft.}^2$$

$$3) \frac{10,000 \cancel{\text{ft.}^2}}{1} \times \frac{1 \text{ mi.}}{5280 \cancel{\text{ft.}}} \times \frac{1 \text{ mi.}}{5280 \cancel{\text{ft.}}} = .00036 \text{ mi.}^2 \text{ (rounded)}$$

$$4) \frac{1200 \cancel{\text{cm}^2}}{1} \times \frac{1 \text{ m}}{100 \cancel{\text{cm}}} \times \frac{1 \text{ m}}{100 \cancel{\text{cm}}} = .12 \text{ m}^2$$

$$5) \frac{1 \cancel{\text{ft.}^3}}{1} \times \frac{12 \text{ in.}}{1 \cancel{\text{ft.}}} \times \frac{12 \text{ in.}}{1 \cancel{\text{ft.}}} \times \frac{12 \text{ in.}}{1 \cancel{\text{ft.}}} = 1,728 \text{ in.}^3$$

$$6) \frac{1 \cancel{\text{yd.}^3}}{1} \times \frac{3 \text{ ft.}}{1 \cancel{\text{yd.}}} \times \frac{3 \text{ ft.}}{1 \cancel{\text{yd.}}} \times \frac{3 \text{ ft.}}{1 \cancel{\text{yd.}}} = 27 \text{ ft.}^3$$

$$7) \frac{1 \cancel{\text{mi.}^3}}{1} \times \frac{5280 \text{ ft.}}{1 \cancel{\text{mi.}}} \times \frac{5280 \text{ ft.}}{1 \cancel{\text{mi.}}} \times \frac{5280 \text{ ft.}}{1 \cancel{\text{mi.}}} = 147,000,000,000 \text{ ft.}^3$$

$$8) \frac{3 \cancel{\text{m}^3}}{1} \times \frac{100 \text{ cm}}{1 \cancel{\text{m}}} \times \frac{100 \text{ cm}}{1 \cancel{\text{m}}} \times \frac{100 \text{ cm}}{1 \cancel{\text{m}}} = 3,000,000 \text{ cm}^3$$

$$9) \frac{3 \cancel{\text{cords}}}{1} \times \frac{128 \text{ ft.}^3}{1 \cancel{\text{cord}}} = 384 \text{ ft.}^3$$

$$10) \frac{2 \cancel{\text{yards}}}{1} \times \frac{27 \text{ ft.}^3}{1 \cancel{\text{yard}}} = 54 \text{ ft.}^3$$

$$11) (X - 5)(X - 5) = 0 \\ X = 5$$

$$12) (5)^2 - 10(5) + 25 = 0 \\ 25 - 50 + 25 = 0 \\ 0 = 0$$

$$13) (X - 7)(X - 5) = 0 \\ X = 7, X = 5$$

$$14) (7)^2 - 12(7) + 35 = 0 \\ 49 - 84 + 35 = 0 \\ 0 = 0$$

$$(5)^2 - 12(5) + 35 = 0 \\ 25 - 60 + 35 = 0 \\ 0 = 0$$

$$15) (3X - 1)(X - 2) = 3X^2 - 7X + 2$$

$$16) 5621 > 4800$$

$$17) WF \times 9 \text{ ft.}^2 = 1 \text{ ft.}^2 \\ WF = 1/9 = .111 \approx 11.1 \%$$

$$18) WF \times 27,878,400 \text{ ft.}^2 = 43,560 \text{ ft.}^2 \\ WF = 1/640$$

$$19) R = \frac{100 \text{ yds.}}{9 \text{ sec.}} = 11.11 \text{ yds}$$

$$20) R = \frac{200 \text{ mi.}}{5 \text{ hrs.}} = 40 \text{ mph}$$

30A

$$1) 2.5$$

$$2) .9$$

$$3) 1.6$$

$$4) 28$$

$$5) \frac{10 \cancel{\text{km}}}{1} \times \frac{.62 \text{ mi.}}{1 \cancel{\text{km}}} = 6.2 \text{ mi.}$$

$$6) \frac{45 \cancel{\text{oz.}}}{1} \times \frac{28 \text{ g}}{1 \cancel{\text{oz.}}} = 1,260 \text{ g}$$

$$7) \frac{21 \cancel{\text{kg}}}{1} \times \frac{2.2 \text{ lbs.}}{1 \cancel{\text{kg}}} = 46.2 \text{ lbs.}$$

$$8) \frac{15 \cancel{\text{yds.}}}{1} \times \frac{.9 \text{ m}}{1 \cancel{\text{yd.}}} = 13.5 \text{ m}$$

$$9) \frac{15 \cancel{\text{cm}}}{1} \times \frac{.4 \text{ in.}}{1 \cancel{\text{cm}}} = 6 \text{ in.}$$

$$10) \frac{25 \cancel{\text{g}}}{1} \times \frac{.035 \text{ oz.}}{1 \cancel{\text{g}}} = .875 \text{ oz.}$$

$$11) \frac{5 \cancel{\text{qts.}}}{1} \times \frac{.95 \text{ l}}{1 \cancel{\text{qt.}}} = 4.75 \text{ liters}$$

$$12) \frac{54 \cancel{\text{in.}}}{1} \times \frac{2.5 \text{ cm}}{1 \cancel{\text{in.}}} = 135 \text{ cm}$$

$$13) \frac{5 \cancel{\text{km}}}{1} \times \frac{.62 \text{ mi.}}{1 \cancel{\text{km}}} = 3.1 \text{ mi.}$$

$$14) \frac{45 \cancel{\text{lbs.}}}{1} \times \frac{.45 \text{ kg}}{1 \cancel{\text{lb.}}} = 20.25 \text{ kg}$$

$$15) \frac{105 \cancel{\text{oz.}}}{1} \times \frac{28 \text{ g}}{1 \cancel{\text{oz.}}} = 2,940 \text{ g}$$

$$16) \frac{63 \cancel{\text{yds.}}}{1} \times \frac{.9 \text{ m}}{1 \cancel{\text{yd.}}} = 56.7 \text{ m}$$

30B

$$1) .4$$

$$2) 1.1$$

$$3) 2.2$$

$$4) 1.06$$

$$5) \frac{25 \cancel{\text{cm}}}{1} \times \frac{.4 \text{ in.}}{1 \cancel{\text{cm}}} = 10 \text{ in.}$$

$$6) \frac{36 \cancel{\text{g}}}{1} \times \frac{.035 \text{ oz.}}{1 \cancel{\text{g}}} = 1.26 \text{ g}$$

$$7) \frac{12 \cancel{\text{qts.}}}{1} \times \frac{.95 \text{ l}}{1 \cancel{\text{qt.}}} = 11.4 \text{ liters}$$

$$8) \frac{110 \cancel{\text{in.}}}{1} \times \frac{2.5 \text{ cm}}{1 \cancel{\text{in.}}} = 275 \text{ cm}$$

$$9) \frac{36 \cancel{\text{in.}}}{1} \times \frac{2.5 \text{ cm}}{1 \cancel{\text{in.}}} = 90 \text{ cm}$$

$$10) \frac{75.5 \cancel{\text{g}}}{1} \times \frac{.035 \text{ oz.}}{1 \cancel{\text{g}}} = 2.64 \text{ oz.}$$

$$11) \frac{18.5 \cancel{\text{yds.}}}{1} \times \frac{.9 \text{ m}}{1 \cancel{\text{yd.}}} = 16.65 \text{ m}$$

$$12) \frac{55 \cancel{\text{kg}}}{1} \times \frac{2.2 \text{ lbs.}}{1 \cancel{\text{kg}}} = 121 \text{ lbs.}$$

$$13) \frac{16.3 \cancel{\text{mi.}}}{1} \times \frac{1.6 \text{ km}}{1 \cancel{\text{mi.}}} = 26.08 \text{ km}$$

$$14) \frac{36 \cancel{\text{qt.}}}{1} \times \frac{1.06 \text{ qts.}}{1 \cancel{\text{qt.}}} = 38.16 \text{ qts.}$$

$$15) \frac{5.05 \cancel{\text{oz.}}}{1} \times \frac{28 \text{ g}}{1 \cancel{\text{oz.}}} = 141.4 \text{ g}$$

$$16) \frac{360.5 \cancel{\text{cm}}}{1} \times \frac{.4 \text{ in.}}{1 \cancel{\text{cm}}} = 144.2 \text{ in.}$$

30C

$$1) \frac{5 \cancel{\text{in.}}}{1} \times \frac{2.5 \text{ cm}}{1 \cancel{\text{in.}}} = 12.5 \text{ cm}$$

$$2) \frac{3 \cancel{\text{qt.}}}{1} \times \frac{.95 \text{ l}}{1 \cancel{\text{qt.}}} = 2.85 \text{ liters}$$

$$3) \frac{10 \cancel{\text{oz.}}}{1} \times \frac{28 \text{ g}}{1 \cancel{\text{oz.}}} = 280 \text{ g}$$

$$4) \frac{62 \cancel{\text{lbs.}}}{1} \times \frac{.45 \text{ kg}}{1 \cancel{\text{lb.}}} = 27.9 \text{ kg}$$

$$5) \begin{array}{r} 3X^2 + X + 4 \quad R -3 \\ 2X + 1 \overline{) 6X^3 + 5X^2 + 9X + 1} \\ \underline{-(6X^3 + 3X^2)} \\ 2X^2 + 9X \\ \underline{-(2X^2 + X)} \\ 8X + 1 \\ \underline{-(8X + 4)} \\ -3 \end{array}$$

$$6) \begin{array}{r} 3X^2 + X + 4 \\ 2X + 1 \overline{) 6X^3 + 2X^2 + 8X} \\ \underline{6X^3 + 5X^2 + 9X + 4} \\ -3 \end{array}$$

$$7) 3X^2$$

$$8) \sqrt{9(10)^4} = 3(10)^2$$

$$300 = 300$$

$$9) \frac{3.5 \cancel{\text{acres}}}{1} \times \frac{43,560 \text{ ft.}^2}{1 \cancel{\text{acre}}} = 152,460 \text{ ft.}^2$$

$$10) \frac{1 \cancel{\text{mi.}}^2}{1} \times \frac{5280 \text{ ft.}}{1 \cancel{\text{mi.}}} \times \frac{5280 \text{ ft.}}{1 \cancel{\text{mi.}}}$$

$$= 27,878,400 \text{ ft.}^2$$

$$11) 221 < 224$$

$$12) 45 \text{ ft.}^2 < 50 \text{ ft.}^2$$

$$13) (X+6)(X+6) =$$

$$X^2 + 12X + 36$$

$$14) Y = 1/2 X - 2$$

$$m = 1/2$$

$$15) X^2 + 5X - 14 = 0$$

$$(X+7)(X-2) = 0$$

$$X = -7, X = 2$$

$$16) (-7)^2 + 5(-7) + 6 = 20$$

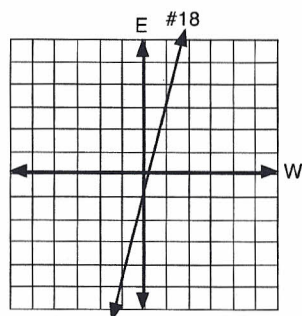
$$49 - 35 + 6 = 20$$

$$20 = 20$$

$$17) (2X+3)(X+2) \dots (2X^2 + 4X + 3X + 6)$$

$$18) E = 400W - 100$$

(E = earnings, W = weeks)



$$19) \$300$$

$$20) E = 400(30) - 100$$

$$E = \$11,900$$

30D

$$1) \frac{7 \cancel{\text{mi.}}}{1} \times \frac{1.6 \text{ km}}{1 \cancel{\text{mi.}}} = 11.2 \text{ km}$$

$$2) \frac{8 \cancel{\text{lbs.}}}{1} \times \frac{.45 \text{ kg}}{1 \cancel{\text{lb.}}} = 3.6 \text{ kg}$$

$$3) \frac{4 \cancel{\text{yds.}}}{1} \times \frac{.9 \text{ m}}{1 \cancel{\text{yd.}}} = 3.6 \text{ m}$$

$$4) \frac{2 \cancel{\text{qt.}}}{1} \times \frac{.95 \text{ l}}{1 \cancel{\text{qt.}}} = 1.9 \text{ liters}$$

$$5) \begin{array}{r} 2X^2 - 5X - 14 \quad R -21 \\ X - 2 \overline{) 2X^3 - 9X^2 - 4X + 7} \\ \underline{-(2X^3 - 4X^2)} \\ -5X^2 - 4X \\ \underline{-(-5X^2 + 10X)} \\ -14X + 7 \\ \underline{-(-14X + 28)} \\ -21 \end{array}$$

$$6) \begin{array}{r} 2X^2 - 5X - 14 \\ X - 2 \overline{) -4X^2 + 10X + 28} \\ \underline{2X^3 - 5X^2 - 14X} \\ 2X^3 - 9X^2 - 4X + 28 \\ \underline{-21} \\ 2X^3 - 9X^2 - 4X + 7 \end{array}$$

$$7) 4X$$

$$8) YX^2$$

$$9) \frac{100,000 \cancel{\text{ft.}}^2}{1} \times \frac{1 \text{ acre}}{43,560 \cancel{\text{ft.}}^2} = 2.296 \text{ acres}$$

$$10) \frac{1.34 \cancel{\text{m}}^2}{1} \times \frac{100 \text{ cm}}{1 \cancel{\text{m}}} \times \frac{100 \text{ cm}}{1 \cancel{\text{m}}}$$

$$= 13,400 \text{ cm}^2$$

$$11) 7,216 < 7,224$$

$$12) 189 \text{ ft.}^3 > 175 \text{ ft.}^3$$

$$13) (X-3)(X-3) =$$

$$X^2 - 6X + 9$$

$$14) Y = 1/2 X - 2$$

perpendicular slope = -2

$$15) X^2 - 12x + 20 = 0$$

$$(X-10)(X-2) = 0$$

$$X = 10, X = 2$$

$$16) (10)^2 - 12(10) + 35 = 15$$

$$100 - 120 + 35 = 15$$

$$15 = 15$$

$$(2)^2 - 12(2) + 35 = 15$$

$$4 - 24 + 35 = 15$$

$$15 = 15$$

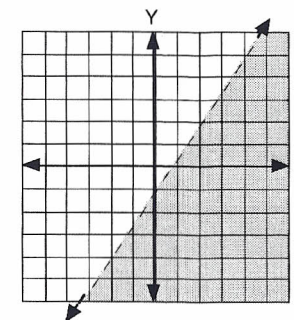
$$17) (2X+7)(X+2) = (2X)(X+2) + (7)(X+2) =$$

$$(2X^2 + 4X + 7X + 14)$$

$$18) T = \frac{D}{R}$$

$$19) T = D/R$$

$$12 \div 6 = 2 \text{ hours}$$



$$20) Y < 3/2 X - 1$$

30E

$$1) \frac{25 \cancel{\text{mi}}}{1} \times \frac{.62 \text{ mi.}}{1 \cancel{\text{mi}}} = 15.5 \text{ mi.}$$

$$2) \frac{7 \cancel{\text{mi}}}{1} \times \frac{1.1 \text{ yd.}}{1 \cancel{\text{mi}}} = 7.7 \text{ yds.}$$

$$3) \frac{11 \cancel{\text{kg}}}{1} \times \frac{2.2 \text{ lbs.}}{1 \cancel{\text{kg}}} = 24.2 \text{ lbs.}$$

$$4) \frac{10 \cancel{\text{qt}}}{1} \times \frac{1.06 \text{ qt.}}{1 \cancel{\text{qt}}} = 10.6 \text{ qts.}$$

$$5) \begin{array}{r} 2X^2 + 3X + 8 \quad R \ 21 \\ 2X - 3 \overline{) 4X^3 + 0X^2 + 7X - 3} \\ \underline{-(4X^3 - 6X^2)} \\ 6X^2 + 7X \\ \underline{-(6X^2 - 9X)} \\ 16X - 3 \\ \underline{-(16X - 24)} \\ 21 \end{array}$$

$$6) \begin{array}{r} 2X^2 + 3X + 8 \\ 2X - 3 \overline{) -6X^2 - 9X - 24} \\ \underline{4X^3 + 6X^2 + 16X} \\ 4X^3 + 7X - 24 \\ \underline{+ 21} \\ 4X^3 + 7X - 3 \end{array}$$

$$7) 12$$

$$8) 5X^3$$

$$9) \frac{1.75 \cancel{\text{yd.}}}{1} \times \frac{9 \text{ ft.}^2}{1 \cancel{\text{yd.}}} = 15.75 \text{ ft.}^2$$

$$10) 25 \times 18 = 450 \text{ ft.}^2$$

$$\frac{450 \cancel{\text{ft.}^2}}{1} \times \frac{1 \text{ yd.}}{9 \cancel{\text{ft.}^2}} = 50 \text{ yards of carpet}$$

$$11) 221 < 224$$

$$12) 45 \text{ ft.}^2 < 50 \text{ ft.}^2$$

$$13) (X-2)(X-2) = X^2 - 4X + 4$$

$$14) (X+4)(X+4) = X^2 + 8X + 16$$

$$15) \begin{array}{l} X^2 + 7X - 60 = 0 \\ (X+12)(X-5) = 0 \\ X = -12, X = 5 \end{array}$$

$$16) \begin{array}{l} (-12)^2 + 7(-12) - 18 = 42 \\ 144 - 84 - 18 = 42 \\ 42 = 42 \\ (5)^2 + 7(5) - 18 = 42 \\ 25 + 35 - 18 = 42 \\ 42 = 42 \end{array}$$

$$17) T = 4 \div 6 = 4/6 = 2/3 \text{ hr. or } 40 \text{ min.}$$

$$18) T = 4 \div 3 = 4/3 = 1 \frac{1}{3} \text{ hr. or } 1 \text{ hr. } 20 \text{ min.}$$

$$19) \begin{array}{l} 2P - 2 + 7 + P - P \\ \text{simplified } 2P + 5 \end{array}$$

$$20) \begin{array}{l} 2P + 5 = 11 \\ 2P = 6, P = 3 \end{array}$$

31A

$$1) \sqrt{16} = 4 \quad 4^3 = 64$$

$$2) 2^2 = 4$$

$$3) \sqrt{100} = 10$$

$$4) \sqrt[3]{8} = 2 \quad 2^2 = 4$$

$$5) X^{5/10} = X^{1/2}$$

$$6) Y^{1/15}$$

$$7) (Y^8)^{1/4} = Y^2$$

$$8) \sqrt[4]{16} = 2 \quad 2^3 = 8$$

$$9) \sqrt[3]{27} = 3 \quad 3^4 = 81$$

$$10) \sqrt[3]{8} = 2 \quad 2 \times 16 = 32$$

$$11) \sqrt{64} = 8 \quad 8^{2/3} = 2^2 = 4$$

$$12) (X^{12})^{1/2} = X^6$$

$$13) (M^{7/6})^6 = M^7$$

$$14) (X^{15} \cdot X^5) = (X^{20})^{1/2} = X^{10}$$

$$15) (X^{10/3})^{1/6} = X^{5/9}$$

$$16) (M^4)^{3/4} = M^3$$

31B

$$1) \sqrt[5]{32} = 2 \quad 2^2 = 4$$

$$2) 9^3 = 729$$

$$3) \sqrt{81} = 9$$

$$4) \sqrt[4]{625} = 5 \quad 5^3 = 125$$

$$5) X^{6/3} = X^2$$

$$6) Y^{1/14}$$

$$7) (Y^{10})^{1/5} = Y^2$$

$$8) \sqrt[3]{27} = 3 \quad 3^2 = 9$$

$$9) \sqrt[4]{81} = 3 \quad 3^5 = 243$$

$$10) \sqrt[3]{64} = 4 \quad 4 \times 4 = 16$$

$$11) 16^{3/12} = 16^{1/4} = 2$$

$$12) (X^8)^{1/4} = X^2$$

$$13) (Y^{5/4})^4 = Y^5$$

$$14) (X \cdot X^4)^{1/5} = (X^5)^{1/5} = X$$

$$15) (X^{12/5})^{1/6} = X^{2/5}$$

$$16) (Y^{14})^{1/2} = Y^7$$