4) 7
6) 6
8) 6
10) 7
12) 27
14) 26
15) B
16) D
17) Should multiply 16 by 3, not 4
18) Should be + 28, distributive prop.
19) 15
21) 10
23) 5.5
25) -3.4
27) 4.2
29) -5.9

32) it gets smaller
33) 5 c
34) 18 min
35) 90 km
36) 48 km
37) 7.5 km
38) 70.5 km
39) 17.728 m
40) a: 213.75 ft
b:

Shell (in)	Burst (ft)
2	90
3	135
4	180
5	225
6	270

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41) 80 yd.
42) a: 4.5 moles
b: 3.4 moles
c: 1.32 to 1
43) 45,000 males
30,000 females

4) $\frac{3}{y} = \frac{15 \div 5}{35 \div 5}$

$\frac{3}{y} = \frac{3}{7}$

If the equation is a proportion, it remains true if you flip it over.

$y = 7$

$\{7\}$

10) $\frac{6}{t+4} = \frac{42 \div 7}{77 \div 7}$

$\frac{6}{t+4} = \frac{6}{11}$

If the equation is a proportion, it remains true if you flip it over.

$t+4 = 11$

$t+4-4 = 11-4$

$t = 7$

$\{7\}$

12) $\frac{n}{n-12} = \frac{9}{5}$

$9(n-12) = 5n$

$9n-108 = 5n$

$9n-9n-108 = 5n-9n$

$-108 = -4n$

$27 = n$

$\{27\}$

Alternate Methods!

12) $\frac{n}{n-12} \rightarrow \frac{9}{5}$

The means - extremes theorem allows us to swap one numerator of a proportion with the other fraction's denominator.

$5n = 9(n-12)$

$5n = 9n-108$

$5n-9n = 9n-9n-108$

$-4n = -108$

$n = 27$

$\{27\}$

14) $\frac{18}{d+13} = \frac{6}{d-13}$

If the equation is a proportion, it remains true if you flip it over.

$d+13 = 3(d-13)$

$d+13 = 3d-39$

$d-d+13 = 3d-d-39$

$13 = 2d-39$

$13+39 = 2d-39+39$

$52 = 2d$

$26 = d$

$\{26\}$

19) $\frac{7}{3} \rightarrow \frac{2x+5}{x}$

The means - extremes theorem allows us to swap one numerator of a proportion with the other fraction's denominator.

$7x = 3(2x+5)$

$7x = 6x+15$

$7x-6x = 6x-6x+15$

$x = 15$

$\{15\}$

21) $\frac{5z+4}{24} = \frac{z-1}{4}$

$5z+4 = 6(z-1)$

$5z+4 = 6z-6$

$5z-5z+4 = 6z-5z-6$

$4 = z-6$

$4+6 = z-6+6$

$10 = z$

$\{10\}$

23) $\frac{k-8}{7+k} \rightarrow \frac{-1}{5}$

The means - extremes theorem allows us to swap one numerator of a proportion with the other fraction's denominator.

$5(k-8) = -(7+k)$

Finish from here...

27) $\frac{n+0.3}{n-3.2} = \frac{9}{2}$

$2(n+0.3) = 9(n-3.2)$

$2n+0.6 = 9n-28.8$

$2n-2n+0.6 = 9n-2n-28.8$

$0.6 = 7n-28.8$

$0.6+28.8 = 7n-28.8+28.8$

$29.4 = 7n$

$4.2 = n$

$\{4.2\}$

33) $\frac{2\text{ c}}{12\text{ biscuit}} = \frac{x}{30}$

$\frac{1}{6} = \frac{x}{30}$ (×30)

$5 = x$

$30\text{ bis} \times \frac{8\text{ cups}}{12\text{ bis.}} =$

5c

41) $6\text{ in width} \times \frac{2}{3} \frac{\text{width}}{\text{length}}$

$4\text{ in width} \times \frac{20\text{ yds}}{1\text{ in}}$

80 yds width

42) $4.58\text{ g H} \times \frac{1\text{ mole}}{1.008\text{ g}}$

≈ 4.5 moles

b: $54.5\text{ g O} \times \frac{1\text{ mole}}{15.999\text{ g}}$

≈ 3.4 moles

c: $\frac{4.5}{3.4}$ compared to $\frac{4}{3}$

1.32 1.33

43) $\frac{2\text{ Females}}{3\text{ males}}$ total: 5

$\frac{2}{5} = \frac{x}{75{,}000}$ (×75,000)

$30{,}000 = x$

30,000 Females

75,000 − 30,000 = 45,000 males