

Cosine Law

Date _____

Solve each triangle. Round your answers to the nearest tenth.

- 1) In $\triangle FDE$, $e = 25.9$ ft, $f = 12.7$ ft, $d = 16.8$ ft
- 2) In $\triangle XYZ$, $x = 18$ km, $z = 17$ km, $y = 30$ km
- 3) In $\triangle DEF$, $e = 19$ in, $m\angle D = 120^\circ$, $f = 23$ in
- 4) In $\triangle HPK$, $k = 24.7$ cm, $h = 25.1$ cm, $p = 26.4$ cm
- 5) In $\triangle RST$, $s = 13$ cm, $t = 29$ cm, $r = 21$ cm
- 6) In $\triangle FDE$, $f = 9$ m, $e = 14$ m, $d = 13$ m
- 7) In $\triangle KHP$, $k = 23.3$ km, $h = 7.2$ km, $p = 19.6$ km
- 8) In $\triangle PKH$, $p = 22.9$ mi, $h = 20.4$ mi, $k = 18.2$ mi
- 9) In $\triangle XYZ$, $y = 10$ ft, $z = 18$ ft, $m\angle X = 99^\circ$
- 10) In $\triangle YZX$, $x = 21$ in, $m\angle Y = 119^\circ$, $z = 14$ in
- 11) In $\triangle ZXY$, $y = 19.7$ ft, $z = 20.7$ ft, $x = 23.3$ ft
- 12) In $\triangle HPK$, $m\angle H = 144^\circ$, $p = 18$ km, $k = 25$ km
- 13) In $\triangle XYZ$, $y = 20$ m, $m\angle X = 91^\circ$, $z = 7$ m
- 14) In $\triangle RST$, $s = 27$ km, $m\angle R = 137^\circ$, $t = 18$ km
- 15) In $\triangle XYZ$, $z = 20$ in, $y = 28$ in, $x = 15$ in
- 16) In $\triangle ABC$, $a = 12$ yd, $c = 13$ yd, $b = 9$ yd
- 17) In $\triangle HPK$, $p = 16$ m, $k = 24$ m, $m\angle H = 121^\circ$
- 18) In $\triangle PKH$, $h = 18.3$ cm, $k = 25.2$ cm, $p = 20.9$ cm
- 19) In $\triangle XYZ$, $m\angle X = 61^\circ$, $z = 30$ cm, $y = 20$ cm
- 20) In $\triangle PQR$, $q = 28$ km, $m\angle P = 55^\circ$, $r = 22$ km

Answers to Cosine Law (ID: 1)

- 1) $m\angle F = 24.5^\circ$, $m\angle D = 33.3^\circ$, $m\angle E = 122.2^\circ$
- 2) $m\angle X = 32^\circ$, $m\angle Y = 118^\circ$, $m\angle Z = 30^\circ$
- 3) $m\angle E = 26.8^\circ$, $m\angle F = 33.2^\circ$, $d = 36.4$ in
- 4) $m\angle H = 58.7^\circ$, $m\angle P = 64^\circ$, $m\angle K = 57.3^\circ$
- 5) $m\angle R = 41^\circ$, $m\angle S = 24^\circ$, $m\angle T = 115^\circ$
- 6) $m\angle F = 38.7^\circ$, $m\angle D = 64.6^\circ$, $m\angle E = 76.7^\circ$
- 7) $m\angle K = 112.3^\circ$, $m\angle H = 16.6^\circ$, $m\angle P = 51.1^\circ$
- 8) $m\angle P = 72.5^\circ$, $m\angle K = 49.3^\circ$, $m\angle H = 58.2^\circ$
- 9) $m\angle Y = 26.7^\circ$, $m\angle Z = 54.3^\circ$, $x = 21.9$ ft
- 10) $m\angle Z = 23.8^\circ$, $m\angle X = 37.2^\circ$, $y = 30.4$ in
- 11) $m\angle Z = 56.8^\circ$, $m\angle X = 70.4^\circ$, $m\angle Y = 52.8^\circ$
- 12) $m\angle P = 15^\circ$, $m\angle K = 21^\circ$, $h = 41$ km
- 13) $m\angle Y = 69.8^\circ$, $m\angle Z = 19.2^\circ$, $x = 21.3$ m
- 14) $m\angle S = 26^\circ$, $m\angle T = 17^\circ$, $r = 42$ km
- 15) $m\angle X = 31.1^\circ$, $m\angle Y = 105.4^\circ$, $m\angle Z = 43.5^\circ$
- 16) $m\angle A = 63^\circ$, $m\angle B = 42^\circ$, $m\angle C = 75^\circ$
- 17) $m\angle P = 23^\circ$, $m\angle K = 36^\circ$, $h = 35$ m
- 18) $m\angle P = 54.7^\circ$, $m\angle K = 79.7^\circ$, $m\angle H = 45.6^\circ$
- 19) $m\angle Y = 40.7^\circ$, $m\angle Z = 78.3^\circ$, $x = 26.8$ cm
- 20) $m\angle Q = 75.5^\circ$, $m\angle R = 49.5^\circ$, $p = 23.7$ km

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- 4) In $\triangle HPK$, $k = 24.7$ cm, $h = 25.1$ cm, $p = 26.4$ cm
- 5) In $\triangle RST$, $s = 13$ cm, $t = 29$ cm, $r = 21$ cm
- 6) In $\triangle FDE$, $f = 9$ m, $e = 14$ m, $d = 13$ m
- 7) In $\triangle KHP$, $k = 23.3$ km, $h = 7.2$ km, $p = 19.6$ km
- 8) In $\triangle PKH$, $p = 22.9$ mi, $h = 20.4$ mi, $k = 18.2$ mi
- 9) In $\triangle XYZ$, $y = 10$ ft, $z = 18$ ft, $m\angle X = 99^\circ$
- 10) In $\triangle YZX$, $x = 21$ in, $m\angle Y = 119^\circ$, $z = 14$ in
- 11) In $\triangle ZXY$, $y = 19.7$ ft, $z = 20.7$ ft, $x = 23.3$ ft
- 12) In $\triangle HPK$, $m\angle H = 144^\circ$, $p = 18$ km, $k = 25$ km
- 13) In $\triangle XYZ$, $y = 20$ m, $m\angle X = 91^\circ$, $z = 7$ m
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- 16) In $\triangle ABC$, $a = 12$ yd, $c = 13$ yd, $b = 9$ yd
- 17) In $\triangle HPK$, $p = 16$ m, $k = 24$ m, $m\angle H = 121^\circ$
- 18) In $\triangle PKH$, $h = 18.3$ cm, $k = 25.2$ cm, $p = 20.9$ cm
- 19) In $\triangle XYZ$, $m\angle X = 61^\circ$, $z = 30$ cm, $y = 20$ cm
- 20) In $\triangle PQR$, $q = 28$ km, $m\angle P = 55^\circ$, $r = 22$ km

Answers to Cosine Law (ID: 2)

- 1) $m\angle F = 24.5^\circ$, $m\angle D = 33.3^\circ$, $m\angle E = 122.2^\circ$
- 2) $m\angle X = 32^\circ$, $m\angle Y = 118^\circ$, $m\angle Z = 30^\circ$
- 3) $m\angle E = 26.8^\circ$, $m\angle F = 33.2^\circ$, $d = 36.4$ in
- 4) $m\angle H = 58.7^\circ$, $m\angle P = 64^\circ$, $m\angle K = 57.3^\circ$
- 5) $m\angle R = 41^\circ$, $m\angle S = 24^\circ$, $m\angle T = 115^\circ$
- 6) $m\angle F = 38.7^\circ$, $m\angle D = 64.6^\circ$, $m\angle E = 76.7^\circ$
- 7) $m\angle K = 112.3^\circ$, $m\angle H = 16.6^\circ$, $m\angle P = 51.1^\circ$
- 8) $m\angle P = 72.5^\circ$, $m\angle K = 49.3^\circ$, $m\angle H = 58.2^\circ$
- 9) $m\angle Y = 26.7^\circ$, $m\angle Z = 54.3^\circ$, $x = 21.9$ ft
- 10) $m\angle Z = 23.8^\circ$, $m\angle X = 37.2^\circ$, $y = 30.4$ in
- 11) $m\angle Z = 56.8^\circ$, $m\angle X = 70.4^\circ$, $m\angle Y = 52.8^\circ$
- 12) $m\angle P = 15^\circ$, $m\angle K = 21^\circ$, $h = 41$ km
- 13) $m\angle Y = 69.8^\circ$, $m\angle Z = 19.2^\circ$, $x = 21.3$ m
- 14) $m\angle S = 26^\circ$, $m\angle T = 17^\circ$, $r = 42$ km
- 15) $m\angle X = 31.1^\circ$, $m\angle Y = 105.4^\circ$, $m\angle Z = 43.5^\circ$
- 16) $m\angle A = 63^\circ$, $m\angle B = 42^\circ$, $m\angle C = 75^\circ$
- 17) $m\angle P = 23^\circ$, $m\angle K = 36^\circ$, $h = 35$ m
- 18) $m\angle P = 54.7^\circ$, $m\angle K = 79.7^\circ$, $m\angle H = 45.6^\circ$
- 19) $m\angle Y = 40.7^\circ$, $m\angle Z = 78.3^\circ$, $x = 26.8$ cm
- 20) $m\angle Q = 75.5^\circ$, $m\angle R = 49.5^\circ$, $p = 23.7$ km

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- 12) In $\triangle HPK$, $m\angle H = 144^\circ$, $p = 18$ km, $k = 25$ km
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- 18) In $\triangle PKH$, $h = 18.3$ cm, $k = 25.2$ cm, $p = 20.9$ cm
- 19) In $\triangle XYZ$, $m\angle X = 61^\circ$, $z = 30$ cm, $y = 20$ cm
- 20) In $\triangle PQR$, $q = 28$ km, $m\angle P = 55^\circ$, $r = 22$ km

Answers to Cosine Law (ID: 3)

- 1) $m\angle F = 24.5^\circ$, $m\angle D = 33.3^\circ$, $m\angle E = 122.2^\circ$
- 3) $m\angle E = 26.8^\circ$, $m\angle F = 33.2^\circ$, $d = 36.4$ in
- 5) $m\angle R = 41^\circ$, $m\angle S = 24^\circ$, $m\angle T = 115^\circ$
- 7) $m\angle K = 112.3^\circ$, $m\angle H = 16.6^\circ$, $m\angle P = 51.1^\circ$
- 9) $m\angle Y = 26.7^\circ$, $m\angle Z = 54.3^\circ$, $x = 21.9$ ft
- 11) $m\angle Z = 56.8^\circ$, $m\angle X = 70.4^\circ$, $m\angle Y = 52.8^\circ$
- 13) $m\angle Y = 69.8^\circ$, $m\angle Z = 19.2^\circ$, $x = 21.3$ m
- 15) $m\angle X = 31.1^\circ$, $m\angle Y = 105.4^\circ$, $m\angle Z = 43.5^\circ$
- 17) $m\angle P = 23^\circ$, $m\angle K = 36^\circ$, $h = 35$ m
- 19) $m\angle Y = 40.7^\circ$, $m\angle Z = 78.3^\circ$, $x = 26.8$ cm
- 2) $m\angle X = 32^\circ$, $m\angle Y = 118^\circ$, $m\angle Z = 30^\circ$
- 4) $m\angle H = 58.7^\circ$, $m\angle P = 64^\circ$, $m\angle K = 57.3^\circ$
- 6) $m\angle F = 38.7^\circ$, $m\angle D = 64.6^\circ$, $m\angle E = 76.7^\circ$
- 8) $m\angle P = 72.5^\circ$, $m\angle K = 49.3^\circ$, $m\angle H = 58.2^\circ$
- 10) $m\angle Z = 23.8^\circ$, $m\angle X = 37.2^\circ$, $y = 30.4$ in
- 12) $m\angle P = 15^\circ$, $m\angle K = 21^\circ$, $h = 41$ km
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- 16) $m\angle A = 63^\circ$, $m\angle B = 42^\circ$, $m\angle C = 75^\circ$
- 18) $m\angle P = 54.7^\circ$, $m\angle K = 79.7^\circ$, $m\angle H = 45.6^\circ$
- 20) $m\angle Q = 75.5^\circ$, $m\angle R = 49.5^\circ$, $p = 23.7$ km